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Construction Engineering
Research Laboratories

Environmental Compliance Assessment and Management System Program (ECAMP)

U.S. Air Force

European Economic Community (EEC)

In response to the growing number of environmental laws and regulations worldwide, the Air Force adopted an environmental compliance program that identifies compliance problems before they are cited as violations by the U.S. Environmental Protection Agency (USEPA).

Beginning in 1984, the U.S. Army Construction Engineering Research Laboratories, in cooperation with the Air Force Engineering and Services Center, began research on ECAMP. Federal, Department of Defense (DOD), and Air Force environmental regulations, along with documentation of good management practices and risk-management information, were integrated into a series of checklists that show (1) legal requirements and (2) specify items or operations to review. Assessment protocols list a point of contact to help assessors review the checklists as effectively as possible.

The Worldwide ECAMP incorporates existing USEPA and private industry checklists, and integrates the DOD *Overseas Environmental Baseline Guidance Document (OEBGD)*, published in October 1992. Additionally, Worldwide ECAMP includes pertinent information from Air Force Regulations, DOD Directives and Instructions, and cited good management practices for overall environmental review. The EEC manual supplements Worldwide ECAMP with existing EEC directives, regulations, and decisions and suggested management practices. The program was tested at Aviano Air Force Base (AFB), Italy in November 1992 and Soesterberg AFB, Netherlands in June 1993.

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FOREWORD

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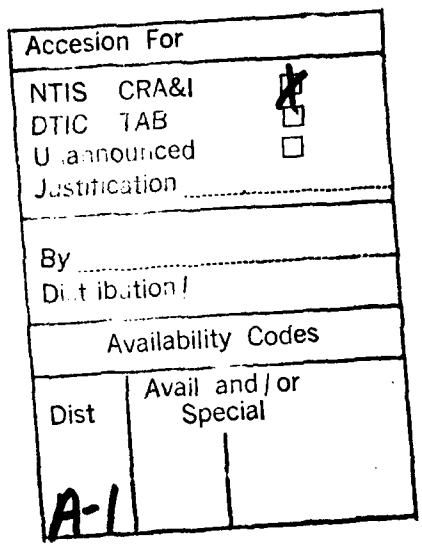
The research was performed by the Environmental Compliance Modeling and Systems Division (EC) for the Environmental Sustainment Laboratory (EL), U.S. Army Construction Engineering Research Laboratories (USACERL). The Principal Investigator was Donna J. Schell, Environmental Compliance Protocol Team, CECER-ECP. Tina M. Beckler, CECER-ECP, was Associate Investigator. Dr. Diane K. Mann, CECER-ECP, is Acting Team Leader. Dr. William D. Goran is Acting Chief, CECER-EC, and Dr. Edward W. Novak is Acting Chief, CECER-EL.

LTC David J. Rehbein is Commander of USACERL and Dr. L.R. Shaffer is Director.



NOTICE

This manual is intended as general guidance for personnel at certain U.S. Air Force installations. It is not, nor is it intended to be, a complete treatise on environmental laws and regulations. Neither the U.S. Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information contained herein. For any specific questions about, or interpretations of, the legal references herein, consult appropriate legal counsel.

MAIN INTRODUCTION

The European Community (EC) is a consortium of Member States which come together to address issues of joint interest. Currently these Member States include: Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, Netherlands, the UK, and Portugal. The EC began to address environmental policy issues in 1972 and the first action program concerning the environment began in 1973. The fourth action program covers the time period of 1987-1992.

EC environmental policy consists of Directives, Regulations and Decisions which then have to be implemented by the Member States. These Directives, Regulations, and Decisions are proposed by the Commission of the European Communities and adopted by the Council. Once adopted by the Council, this legislation is then binding on the Member States.

The most common form of legislation is the Directive. Once a Directive has been adopted by the Council, Member States are than required to implement the provisions of the Directive in their own national legislation. For some Member States this means implementing much more stringent laws and regulations than are currently in effect. Other Member States with long-standing environmental policies may already have legislation in effect which not only meets the provisions of the Directive but is more stringent.

National governments are given a period of time, often two years, to implement the provisions of the Directives. Once they have been implemented the Member State then is required to send copies of the laws/regulations to the Commission in Brussels for review. If the Commission is not satisfied they will notify the Member State. If, after discussion and correspondence, the situation is not resolved, the Commission can bring the matter before the European Court of Justice. Although the European Court of Justice has no power to apply any sanctions, up to this time no Member State has refused to accept a ruling of the Court.

Additionally, the EC itself is a party to several international conventions concerning the environment. This can be a point of conflict between individual Member States and the Commission when the Member State wants to adopt a position different than that of the Commission. Participation in these conventions does impact environmental policy set by the EC and therefore influences the content of the legislation issued.

The EC does have a Directive (85/337/EEC) requiring environmental impact assessments to be done on specific types of facilities. At this time, the only facility type listed that might be located on an Air Force installation is waste disposal facilities for the incineration, chemical treatment, or landfill of toxic and dangerous waste. But the specific requirements as to how the assessment is to be done and what documentation is to be generated is decided by the Member States.

Section 1

AIR EMISSIONS MANAGEMENT

Section 1

AIR EMISSIONS MANAGEMENT

A. EC Legislation

EC Legislation concerning air quality can be divided into three categories:

- standards for products (i.e. cars, fuels)
- general air quality standards
- emission standards.

Acid rain is an important issue in the EC and the reduction of acid rain has been one of the primary considerations in the development of air quality legislation. Currently the issues affecting the Air Force which have been legislated are:

- standards for the sulfur content of fuels
- emission standards for municipal incinerators and combustion plants over 50 megawatts (MW).

All new combustion plants over 50 MW are required to incorporate the best available technology for reducing emissions, and existing facilities are required to be modified according to programs established by Member States, which must meet the phased overall national reductions outlined here:

	Emissions	Emission ceilings			percent red'n over 1980		
	1980	1993	1998	2003	1993	1998	2003
Belgium	530	318	212	159	-40	-60	-70
Denmark	323	213	141	106	-34	-56	-67
France	1910	1146	764	573	-40	-60	-70
Germany	2225	1335	890	668	-40	-60	-70
Greece	303	320	320	320	+6	+6	+6
Ireland	99	124	124	124	+25	+25	+25
Italy	2450	1800	1500	900	-27	-39	-63
Luxembourg	3	1.8	1.5	1.5	-40	-50	-60
Netherlands	229	180	120	90	-40	-60	-70
Portugal	115	232	270	206	+102	+135	+79
Spain	2290	2290	1730	1440	0	-24	-37
UK	3883	3106	2330	1553	-20	-40	-60
EC	14430	11065	8402	6140	-23	-42	-58

- 82/884/EEC, *Council Directive of 3 December 1982 on a limit value for lead in the air.* Member States are required to regulate emissions of lead from potential sources so that the limit value of lead in the atmosphere does not exceed 2 micrograms per cubic meter ($\mu g/m^3$). The installation should be aware of and abiding by any limits placed by a Host Nation on the operation of these sources of lead emissions.

- 84/360/EEC, *Council Directive of 28 June 1984 on the combating of air pollution from industrial plants.* Member States must require that specific types of industrial plants be licensed prior to operation and when a major modification has occurred. The following types of industrial plants at the installation should be licensed: thermal power stations, except for nuclear power stations, and other combustion installations with a nominal heat output of more than 50 MW; plants for the disposal of toxic and dangerous waste by incineration; plants for the treatment by incineration of other solid and liquid wastes.

- 85/203/EEC, *Council Directive of 7 March 1985 on air quality standards for nitrogen dioxide as amended by 85/580/EEC.* Member States are required to regulate sources of nitrogen dioxides emissions so that nitrogen dioxide in the atmosphere does not exceed 200 $\mu g/m^3$ in order to protect human health. The installation should be aware of and abiding by any limits placed by a Host Nation on the operation of these sources of nitrogen dioxide emissions.

- 88/609/EEC, *Council Directive of 24 November 1988 on the limitation of certain pollutants into the air from large combustion plants as amended by 90/656/EEC.* Member States must require combustion plant operators to report on the results of continuous monitoring and all other measurements made to assess compliance. The installation should be maintaining required records and reporting to the competent authorities as required by the Host Nation.

B. EC Implementation of Treaties and Conventions

The Community has approved the following treaties and conventions related to air quality:

- the Vienna Convention for the Protection of the Ozone Layer by Decision 88/540/EEC
- the Montreal Protocol on Substances that Deplete the Ozone Layer by Decision 88/540/EEC
- the Convention on Long-range Transboundary Air Pollution by Decision 81/462/EEC, amended by 86/277/EEC.

C. Key Compliance Definitions

- *Air Pollution* - the introduction by man, directly or indirectly, of substances or energy into the air resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment (89/369/EEC).

- *Appliance* - the boiler body designed to have a burner fitted and/or the burner designed to be fitted to a boiler body (92/42/EEC, Article 2).

- *Average Temperature of a Water Boiler* - the average of the water temperatures at the entry and exit of the boiler (92/42/EEC, Article 2).

- *Back-Boiler* - a boiler designed to supply a central-heating system and to be installed in a fireplace recess as part of a back boiler/gas fire combination (92/42/EEC, Article 2).

- *Boiler* - the combined boiler body-burner unit, designed to transmit to water the heat released from burning (92/42/EEC, Article 2).

- *Boiler to be Installed in a Living Space* - a boiler with an effective rated output of less than 37 kilowatt (kw), designed to provide heat to the part of the living space in which it is installed by means of the emission of heat from the casing having an open expansion chamber, supplying hot water using gravity circulation; such boilers shall bear on their casings the explicit indication that they must be installed in living space (92/42/EEC, Article 2).

- *Chlorofluorocarbons* - this includes $CFCl_3$ (CFC-11), CF_2Cl_2 (CFC-12, $C_2F_3Cl_3$ (CFC-113), $C_2F_4Cl_2$ (CFC-114), and C_2F_5Cl (CFC-115) (Council Regulation No. 3322/88).

- *Combustion Plant* - any technical apparatus in which fuels are oxidized in order to use the heat then generated (88/609/EEC).

- *Effective Rated Output* - (expressed in kw): the maximum calorific output laid down and guaranteed by the manufacturer as being deliverable during continuous operation while complying with the useful efficiency indicated by the manufacturer (92/42/EEC, Article 2).

- *Emission* - the discharge of substances from the combustion plant into the air (88/609/EEC).

- *Emission Limit Value* - the concentration and/or mass of polluting substances which is not to be exceeded in emissions from plants during a specific period (89/369/EEC).

- *Existing Plant* - a plant in operation before 1 July 1987 or built or authorized before that date (84/360/EEC).

- *Gas Condensing Boiler* - a boiler designed to condense permanently a large part of the water vapor contained in the combustion gases (92/42/EEC, Article 2).

- *Gas Oil* - any petroleum product falling under subheading 27-10 C I of the Common Customs Tariff (1 January 1974 edition) or any petroleum product which, by reason of distillation limits, falls into the category of middle distillates intended for use as fuel and of which at least 85 percent by volume, including distillation losses, distills at 350 ^{o}C. This does not include:

  - gas oil intended for processing in the refining industry
  - gas oil used by shipping
  - gas oil contained in the fuel tanks of inland waterway vessels or of motor vehicles traveling from one zone to another or crossing a frontier between a non-member state and a Member State (75/716/EEC).

- *Halons* - this includes CF_2BrCl (halon-1211), CF_3Br (halon-1301), and $C_2F_4Br_2$ (halon-2402) (Council Regulation No. 3322/88).

- *Industrial Plant* - not defined in the Directives. See *Plant*.

- *Leaded Petrol* - all petrol other than unleaded petrol. This shall have a maximum permitted lead-compound content, calculated in terms of lead, of not more than 0.40 grams per liter (g/L) and not less than 0.15 g/L of lead (85/210/EEC).

- *Limit Value* - the concentration of a substance in the air which is subject to the conditions laid down in a Directive (82/884/EEC, 85/201/EEC).

- *Low Temperature Boiler* - a boiler which can work continuously with a water supply temperature of 35 to 40 ^{o}C, possibly producing condensation in certain circumstances, including condensing boilers using liquid fuel (92/42/EEC, Article 2).

- *Municipal Waste* - domestic refuse, as well as commercial or trade refuse and other waste which, because of its nature or composition is similar to domestic refuse (89/369/EEC).

- *Municipal Waste Incineration Plant* - any technical equipment used for the treatment of municipal waste by incineration with or without recovery of the combustion heat generated, but excluding plants used specifically used for the incineration of sewage sludge, chemical, toxic, and dangerous waste, medical waste from hospitals or other types of special waste, on land or at sea, even if these plants may burn municipal waste as well (89/369/EEC).

- *New Municipal Waste Incineration Plant* - a municipal waste incineration plant that was granted permission to operate as of 1 December 1990 (89/369/EEC).

- *Nominal Capacity of an Incineration Plant* - the sum of the incineration capacities of the furnaces of which the plant is composed, as specified by the constructor and confirmed by the operator, with due account being taken, in particular, of the calorific value of the waste, expressed as the quantity of waste incinerated per hour (89/369/EEC).

- *Part Load* -I(expressed in percent): the ratio between the effective output of a boiler operating intermittently or at an output lower than the effective rated output and the same effective rated output (92/42/EEC, Article 2).

- *Petrol* - any volatile mineral oil intended for the operation of internal combustion spark-ignited engines used for the propulsion of vehicles (85/210/EEC).

- *Plant* - any establishment or other stationary plant used for industrial or public utility purposes which is likely to cause air pollution (84/360/EEC).

- *Standard Boiler* - a boiler for which the average water temperature can be restricted by design (92/42/EEC, Article 2).

- *Undertaking* - any natural or legal person which produces or uses in the Community CFCs or halons for industrial or commercial purposes or which imports those substances into, or exports them from, the Community for industrial or commercial purposes (Council Regulation No. 3322/88).

- *Unleaded Petrol* - any petrol, the contamination of which by lead compounds calculated in the terms of lead does not exceed 0.013 g/L of lead (85/210/EEC).

- *Useful Efficiency* - (expressed in percent): the ratio between the heat output transmitted to the boiler water and the product of the net calorific value at constant fuel pressure and the consumption expressed as a quantity of fuel per unit time (92/42/EEC, Article 2).

- *Waste Gases* - gaseous discharges containing solid, liquid or gaseous emissions (88/609/EEC).

AIR EMISSIONS MANAGEMENT PROTOCOL

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS: *
All installations	1-1 and 1-2	(1)(2)
If the installation emits lead emissions	1-3 and 1-4	(1)(2)(3)
If the installation operates a municipal waste incineration plant	1-5 through 1-10	(1)(2)(3)
If the installation operates a combustion plant	1-11 through 1-16	(2)(3)
If the installation distributes gasoline	1-17	(4)(10)
If the installation operates sources of CFC's and Halons	1-18	(1)(2)(5)(6)(7)(8)(9)
If the installation boilers	1-19	(1)(3)

*CONTACT/LOCATION CODE:

(1) BCE (Base Civil Engineering/Environmental Planning)
(2) BEE (Bioenvironmental Engineering)
(3) Air Pollution Source Operator
(4) Fuels - Management Branch
(5) Transportation - Maintenance Branch
(6) LGS (Base Supply)
(7) MWR (Morale, Welfare, and Recreation) Auto Hobby Shop
(8) Refrigeration Shops (BCE)
(9) Equipment Maintenance Squadron
(10) AAFES (Army Air Force Exchange Service) Gas Station

AIR EMISSIONS MANAGEMENT

Records to Review

- Host Country air pollution control regulations
- Emissions inventory
- All air pollution source permits
- Plans and procedures applicable to air pollution control
- Emission monitoring records
- Reports/complaints concerning air quality
- Host Country regulatory inspection reports
- Documentation of preventive measures or actions

Physical Features to Inspect

- All air pollution sources (fuel burners, incinerators, VOC sources, etc)
- Air pollution monitoring and control devices
- Air emission stacks
- Air intake vents

Sources to Interview

- BCE (Base Civil Engineering/Environmental Planning)
- BEE (Bioenvironmental Engineering)
- Air Pollution Source Operator
- Fuels - Management Branch
- Transportation - Maintenance Branch
- LGS (Base Supply)
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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
1-1. Determine actions or changes since previous review of air emissions (GMP).	Determine if noncompliance issues have been resolved by obtaining a copy of the previous report. (1)(2)
1-2. Copies of EC Directives and Host Nation Laws and Regulations should be maintained at the installation (GMP).	Determine if copies of the following are maintained and kept current at the installation: (1)(2) - *Council Regulation No. 3322/88 of 14 October 1988 on certain chlorofluorocarbons and halons which deplete the ozone layer as amended by 89/419/EEC Commission Decision.* - 75/716/EEC, *Council Directive of 24 November 1975 on the approximation of the laws of the Member States relating to the sulphur content of certain liquid fuels as amended by 87/219/EEC.* - 80/779/EEC, *Council Directive of 15 July 1980 on air quality limit values and guide values for sulphur dioxide and suspended particulates as amended by 81/857/EEC and 89/427/EEC.* - 81/857/EEC, *Council Directive of 19 October 1981 adapting, consequent upon the accession of Greece, Directive 80/779/EEC on air quality limit values and guide values for sulphur dioxide and suspended particulates.* - 82/884/EEC, *Council Directive of 3 December 1982 on a limit value for lead in the air.* - 84/360/EEC, *Council Directive of 28 June 1984 on the combating of air pollution from industrial plants.* - 85/203/EEC, *Council Directive of 7 March 1985 on air quality standards for nitrogen dioxide as amended by 85/580/EEC.* - 85/210/EEC, *Council Directive of 20 March 1985 on the approximation of the laws of the Member States concerning the lead content of petrol as amended by 85/581/EEC and 87/416/EEC.* - 85/581/EEC, *Council Directive of 20 December 1985 adapting, on account of the accession of Spain and Portugal, Directives 85/210/EEC on the approximation of the laws of the Member States concerning the lead content of petrol.* - 87/219/EEC, *Council Directive on the approximation of the laws of the Member States relating to the sulphur content of certain liquid fuels.* - 87/416/EEC, *Council Directive of 21 July 1987 amending Directive 85/210/EEC on the approximation of the laws of the Member States concerning the lead content of petrol.* - 88/609/EEC, *Council Directive of 24 November 1988 on the limitation of certain pollutants into the air from large combustion plants as amended by 90/656/EEC.* - 89/369/EEC, *Council Directive of 8 June 1989 on the prevention of air pollution from new municipal waste incineration plants.* - 89/427/EEC, *Council Directive of 21 June 1989 amending Directive 80/779/EEC on air quality limit values and guide values for sulphur dioxide and suspended particulates.*

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-2. (continued)	- 89/429/EEC, *Council Directive of 21 June 1989 on the reduction of air pollution from existing municipal waste incineration plants.* - 90/656/EEC, *Council Directive of 4 December 1990 on the transitional measures applicable in Germany with regard to certain Community provisions relating to the protection of the environment (Amends 88/609/EC.* - 90/660/EEC, *Council Directive of 4 December 1990 on the transitional measure applicable in Germany with regard to certain Community provisions relating to the protection of the environment, in connection with the internal market (amends 75/716/EEC).* - 92/42/EEC, *Council Directive of 21 May 1992 on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels.*
EMISSIONS OF SPECIFIC SUBSTANCES	
1-3. Installations are required to operate sources of sulphur dioxide or particulate emissions so that the limits outlined in Table 1-1 are not exceeded (80/779/EEC, Article 3 and Annex 1).	Determine if the installation is operating any sources of sulfur dioxide or particulates emissions. (1)(2) Verify that sources on the installation meet the requirements outlined in Table 1-1. (1)(2)(3)
1-4. Installations should control emissions of sulfur dioxide and particulates so that they fall within the guidelines outlined in Table 1-2 (GMP).	Verify that the installation is trying to fall within the guidelines outlined in Table 1-2. (1)(2)(3) (NOTE: This GMP is based on guidelines found in 80/779/EEC, Article 5 and Annex 11.)

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
MUNICIPAL WASTE INCINERATION PLANTS **1-5.** Municipal waste incineration plants authorized to operate after 1 December 1990 are required to meet specific emission standards (89/369/EEC, Articles 3 through 5, and 8).	Determine if the installation operates a municipal waste incineration plant. (1)(2) Verify that the municipal waste incinerator meets the emissions standards outlined in Table 1-3. (3) Verify that at municipal waste incinerator plants are designed and operated so that gas resulting from the combustion of waste is heated, after the last injection of combustion air, in a controlled and homogeneous fashion and even in the most unfavorable conditions, to a temperature of at least 850 ^{o}C for at least 2 seconds (s) in the presence of at least 6 percent oxygen. (3) Verify that the concentration of carbon monoxide in the combustion gases does not exceed 100 mg/nm^3 as an hourly average in standard conditions. (3) Verify that if a plant has a nominal capacity of 1 metric ton/hour (h) or more, at least 90 percent of all carbon monoxide measurement taken in any 24 h period are below 150 mg/nm^3. (3) Verify that the concentration of organic compounds (expressed as total carbon) in the combustion gases does not exceed 20 mg/nm^3 in standard conditions. (3) Verify that waste gases are discharged in a controlled fashion through a stack. (3)

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-6. Municipal waste incineration plants authorized to operate after 1 December 1990 are required to follow specific operating procedures (89/369/EEC, Article 6).	Verify that installations with plants that have a nominal capacity equal to or greater than 1 metric ton/h take the following measurements: (2)(3) - continuous measurements of total dust, carbon monoxide, oxygen and HCL - periodic measurements of concentrations of heavy metals, HF, and sulfur dioxide. Verify that installations with plants that have a nominal capacity of less than 1 metric ton/h periodically measure concentrations of HCL, CO and oxygen. (2)(3) Verify that all size plants periodically measure concentrations of organic compounds (expressed as total carbon). (2)(3) Verify that the temperature of the gases in the area where the temperature of the waste gas is raised are continuously monitored. (2)(3) (NOTE: Standardized conditions are as follows: temperature 273 K, pressure 101.3 kPa, 11 percent oxygen, dry gas.) Verify that all measurement results are recorded, processed, and presented so that competent authorities can verify compliance. (2)(3) Verify that the plant is equipped with an auxiliary burner that switches on automatically when the temperature of the combustion gases falls below 850 ^{o}C. (2)(3)
1-7. Municipal waste incineration plants that were authorized to operate prior to 1 December 1990 with a nominal capacity of 6 metric tons or more of waste per hour are required to meet specific emissions limitations (89/429/EEC, Article 2(a) and 4).	Determine if the installation is operating a municipal waste incineration plant that was authorized to operate prior to 1 December 1990. (2)(3) Verify that progress is being made so that plants with a nominal capacity equal to 6 metric tons or more of waste per hour will be operating within the same limitations as a new waste incineration plant by 1 December 1996. (2)(3) Verify that by 1 December 1996, plants will raise the temperature of gases resulting from the combustion of the waste, after the last injection of combustion air and even under the most unfavorable conditions, to a temperature of at least 850 ^{o}C for at least 2 s in the presence of at least 6 percent oxygen. (2)(3) Verify that carbon monoxide concentrations in the combustion gases do not exceed 100 mg/nm^{3} on an hourly average. (2)(3)

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-8. Municipal waste incineration plants with a nominal capacity less than 6 metric tons/h that were authorized to operate prior to 1 December 90 are required to meet specific emissions limitations (89/429/EEC, Article 2(b) through 7).	Verify that progress is being made so that by 1 December 1995, plants with a nominal capacity of less than 6 metric tons/h but greater than 1 metric ton/h have total dust emissions equal to or less than 100 mg/nm^3.(2)(3) Verify that progress is being made so that by 1 December 1995 plants with a nominal capacity less than 1 metric ton/h have total dust emissions equal or are less than 600 mg/nm^3. (2)(3) Verify that plans are being made so that by 1 December 2000, these plants meet the requirements which apply to facilities which were authorized after 1 December 1990. (2)(3) Verify that by 1 December 1995 the the temperature of the gases resulting from the combustion of the waste, after the last injection of combustion air and even in the most unfavorable conditions, to a temperature of at least 850 ^{o}C in the presence of 6 percent oxygen for a sufficient time to be determined by Host Nation competent authorities. (2)(3) Verify that the temperature of gases in the combustion chamber is continuously monitored and recorded. (2)(3) Verify that carbon monoxide concentrations in the combustion gases do not exceed 100 mg/nm^3. Verify that by 1 December 1995 continuous monitoring is done of concentrations of total dust, CO, and oxygen at plants of a nominal capacity of of 1 metric ton/h or more. Verify that by 1 December 1995 periodic monitoring is done of concentration of total dust, oxygen and CO at plants of nominal capacity of less then 1 metric ton/h. (2)(3) Verify that results of measurements are recorded, processed, and presented so that compliance can be verified. (2)(3)
1-9. During times of start-up, breakdown or shutdown the dust content of discharges from any municipal waste incineration plant must not exceed 600 mg/nm^3 (89/369/EEC, Article 8 and 89/429/EEC, Article 7).	Verify that during times of start-up, shutdown or breakdown the dust content of discharges does not exceed 600 mg/nm^3. (2)(3)

(1) BCE (Base Civil Engineering/Environmental Planning) (2) BEE (Bioenvironmental Engineering) (3) Air Pollution Source Operator (4) Fuels - Management Branch (5) Transportation - Maintenance Branch (6) LGS (Base Supply) (7) MWR (Morale, Welfare, and Recreation) Auto Hobby Shop (8) Refrigeration Shops (BCE) (9) Equipment Maintenance Squadron (10) AAFES (Army Air Force Exchange Service) Gas Station

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-10. When emissions limitations are exceeded at municipal waste incineration plants the competent Member State authorities must be notified (89/369/EEC, Article 8 and 89/429/EEC, Article 7).	Verify that when emissions limitations are exceeded, the installation notifies the competent authorities. (2)(3)
EMISSIONS FROM INDUSTRIAL AND LARGE COMBUSTION PLANTS	
1-11. Licensed industrial plants must not emit emissions of specific substances in amounts that would cause significant air pollution (84/360/EEC, Article 4 and Annex II).	Verify that licensed industrial plants do not emit the following in amounts that would cause significant air pollution: (2)(3) - sulphur dioxide and sulphur compounds - oxides of nitrogen and other nitrogen compounds - carbon monoxide - organic compounds, in particular hydrocarbons (except methane) - heavy metals and their components - dust, asbestos (suspended particulates and fibers), glass and mineral - fibers - chlorine and its compounds - fluorine and its compounds. Verify that all appropriate preventive measures have be taken to prevent air pollution provided that the application of the measures does not cause excessive costs.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
1-12. Combustion plants designed for the production of energy for which the original licenses to operate were granted prior to 1 July 1987 are required to reduce their sulfur dioxide and nitrogen oxides emissions (88/609/EEC, Articles 2 and 3) .	Determine if the installation operates a combustion plant for the production of energy that was granted its original license to operate prior to 1 July 1987. (2)(3) Verify that combustion plants are reducing their sulfur dioxide and nitrogen oxides emissions according to the limits outlined in Table 1-4 (2)(3) (NOTE: These requirements do not apply to the following: - plants which make direct use of the products of combustion in a manufacturing process - plants in which products of combustion are used for the direct heating, drying, or any other treatment of objects or materials e.g. reheating furnaces or furnaces for heat treatment - post-combustion plants, i.e. any technical apparatus designed to purify the waste gases by combustion which is not operating as an independent combustion plant - facilities for the regeneration of catalytic cracking catalysts - plants powered by diesel, petrol and gas engines or by gas turbines.) (NOTE: When two or more separate new plants can discharge waste gases through the same stack, the combination formed will be regarded as a single unit.)
1-13. Combustion plants designed for the production of energy for which the original licenses to operate were granted after 1 July 1987 are required to limit emissions of sulfur dioxide, nitrogen oxides, and dust (88/609/EEC, Articles 2, 4, and 9).	Determine if the installation operates a combustion plant for the production of energy that was granted its original license to operate after 1 July 1987. (2)(3) Verify that combustion plants are meeting the emissions limitations for sulfur dioxide, nitrogen oxides and dust as outlined in Tables 1-5, 1-6 and 1-7. (2)(3) (NOTE: Limits for multi-fuel firing units will be set by competent authorities.) (NOTE: These requirements do not apply to the following: - plants which make direct use of the products of combustion in a manufacturing process - plants in which products of combustion are used for the direct heating, drying, or any other treatment of objects or materials e.g. reheating furnaces, furnaces for heat treatment - post-combustion plants i.e. any technical apparatus designed to purify the waste gases by combustion which is not operating as an independent combustion plant - facilities for the regeneration of catalytic cracking catalysts - plants powered by diesel, petrol and gas engines or by gas turbines.) (NOTE: When two or more separate new plants can discharge waste gases through the same stack, the combination formed will be regarded as a single unit.)

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-14. Combustion plants designed for the production of energy for which the original licenses to operate were granted after 1 July 1987 that have a rated thermal output equal to or greater than 400 MW and do not operate more than 2200 h a year will not emit more than 800 mg/Nm^3 of sulfur dioxide (88/609/EEC, Articles 2 and 5(1)).	Verify that combustion plants with a rated thermal output equal to or greater than 400 MW that do not operate more than 2200 h a year do not emit more than 800 mg/Nm^3 of sulfur dioxide. (2)(3) (NOTE: These requirements do not apply to the following: - plants which make direct use of the products of combustion in a manufacturing process - plants in which products of combustion are used for the direct heating, drying, or any other treatment of objects or materials e.g. reheating furnaces, furnaces for heat treatment - post-combustion plants i.e. any technical apparatus designed to purify the waste gases by combustion which is not operating as an independent combustion plant - facilities for the regeneration of catalytic cracking catalysts - plants powered by diesel, petrol and gas engines or by gas turbines.) (NOTE: When two or more separate new plants can discharge waste gases through the same stack, the combination formed will be regarded as a single unit.)
1-15. Combustion plants designed for the production of energy for which the original licenses to operate were granted after 1 July 1987 with a rated thermal heat output of greater than 300 MW are required to monitor specific emissions (88/609/EEC, Articles 2 and 13, Annex IX).	Verify that concentrations of SO_2, dust, nitrogen oxides and oxygen are continuously monitored. (2)(3) (NOTE: These requirements do not apply to the following: - plants which make direct use of the products of combustion in a manufacturing process - plants in which products of combustion are used for the direct heating, drying, or any other treatment of objects or materials e.g. reheating furnaces, furnaces for heat treatment - post-combustion plants i.e. any technical apparatus designed to purify the waste gases by combustion which is not operating as an independent combustion plant - facilities for the regeneration of catalytic cracking catalysts - plants powered by diesel, petrol and gas engines or by gas turbines.) (NOTE: When two or more separate new plants can discharge waste gases through the same stack, the combination formed will be regarded as a single unit.)

(1) BCE (Base Civil Engineering/Environmental Planning) (2) BEE (Bioenvironmental Engineering) (3) Air Pollution Source Operator (4) Fuels - Management Branch (5) Transportation - Maintenance Branch (6) LGS (Base Supply) (7) MWR (Morale, Welfare, and Recreation) Auto Hobby Shop (8) Refrigeration Shops (BCE) (9) Equipment Maintenance Squadron (10) AAFES (Army Air Force Exchange Service) Gas Station

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
1-16. Waste gases from combustion plants are required to be discharged in a controlled fashion through a stack (88/609/EEC, Article 2 and 10).	Verify that waste gases from combustion plants are discharged through a stack. (2)(3) (NOTE: These requirements do not apply to the following: - plants which make direct use of the products of combustion in a manufacturing process - plants in which products of combustion are used for the direct heating, drying, or any other treatment of objects or materials e.g. reheating furnaces, furnaces for heat treatment - post-combustion plants i.e. any technical apparatus designed to purify the waste gases by combustion which is not operating as an independent combustion plant - facilities for the regeneration of catalytic cracking catalysts - plants powered by diesel, petrol and gas engines or by gas turbines.) (NOTE: When two or more separate new plants can discharge waste gases through the same stack, the combination formed will be regarded as a single unit.)
FUELS	
1-17. Gas oils sold on the installation are required to meet specific limitations for sulfur compound content (75/716/EEC, Articles 2 and 5).	Verify that gas oils marketed on the installation do not have a sulfur compound content in excess of 0.3 percent by weight. (4)(10) (NOTE: Member States may require the use of gas oil with sulfur content equal to 0.2 percent by weight.)
CFCs and HALONS	
1-18. CFCs and Halons may not be imported for use at installation in excess of the amounts outlined in Tables 1-8, and importation may only be done with an importation license from the Member State (Council Regulation No. 3322/88, Articles 1 through 3, 7, 11).	Verify that CFCs and Halons used on the installation were obtained thorough a licensed importer. (1)(2)(5)(6)(7)(8)(9) Verify that if the installation is acting as the importer, it has notified the competent authority of the Host Nation of the amount imported into the Community and any CFCs or halons destroyed not later than 31 August and 28 February of each year. (1)(2)(5)(6)(7)(8)(9)

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
BOILERS **1-19.** Boilers must meet certain useful efficiency requirements (92/42/EEC, Articles 2, 3 and 5).	Verify that boilers meet the following useful efficiency requirements: (1)(3) - at rated output, i.e. operating at rated output Pn expressed in kW, at an average boiler-water temperature of 70 °C, and - a part load, i.e. operating at 30 percent part load, at an average boiler-water temperature which varies according to the type of boiler. Verify that all boilers meet the useful efficiency requirements specified in Table 1-9. (NOTE: The following shall be excluded from the requirements of this entry: - hot-water boilers capable of being fired by different fuels including solid fuels, - equipment for the instantaneous preparation of hot water, - boilers designed to be fired by fuels the properties of which differ appreciably from the properties of the liquid and gaseous fuels commonly marketed (industrial waste gas, biogas, etc), - cookers and appliances designed mainly to heat the premises in which they are installed and, as a subsidiary function, to supply hot water for central heating and sanitary hot water, - appliances with rated outputs of less than 6 kw using gravity circulation and designed solely for the production of stored sanitary hot water, - boilers manufactured on a one-off basis.) (NOTE: The harmonized standards, relating to the requirements of this entry, drawn up under mandate from the Commission in accordance with directive 83/189/EEC and 88/182/EEC shall determine, inter alia, the verification methods valid for production and measurements. Appropriate tolerances must be incorporated in the efficiency levels.)

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Table 1-1

Emissions Limitations for Sulfur Dioxide and Suspended Particulates

Reference Period	Limit Value for Sulfur Dioxide $\mu g/m^3$	Associated Value for Suspended Particulates $\mu g/m^3$
Year	80 (median of daily mean values taken throughout the year)	>40 (median of daily mean values taken throughout the year)
	120 (median of daily mean values taken throughout the year)	≤40 (median of daily mean values taken throughout the year)
Winter (1 October to 31 March)	130 (median of daily mean values taken throughout the winter)	>60 (median of daily mean values taken throughout the winter)
	180 (median of daily mean value taken throughout the winter)	≤60 (median of daily mean value taken throughout the winter)
Year (made up of units of measuring periods of 24 hours)	250* (98 percentile of all daily mean values taken throughout the year)	>150 (98 percentile of all daily mean values taken throughout the year)
	350* (98 percentile of all daily mean values taken throughout the year)	≤150 (98 percentile of all daily mean values taken throughout the year)

* This value is not to be exceeded for more than three consecutive days.

Table 1-1 (continued)

Reference Period	Limit Value for Suspended Particulates
Year	80 (median of daily mean values taken throughout the year)
Winter (1 Oct to 31 Mar)	130 (median of daily mean values taken throughout the winter)
Year (made up of units of measuring periods of 24 hours)	250* (98 percentile of all daily mean values taken throughout the year)

* This value is not to be exceeded for more than three consecutive days.

Table 1-2

Guide Values for Sulfur Dioxide and Suspended Particulates

Sulfur Dioxide ($\mu g/m^3$)

Reference Period	Guide Value for Sulfur Dioxide
Year	40 to 60 (arithmetic mean of daily mean values taken throughout the year)
24 h	100 to 150 (daily mean value)

Suspended Particulates as Measured by the Black-smoke Method ($\mu g/m^3$)

Reference Period	Guide Value for Suspended Particulates
Year	40 to 60 (arithmetic mean of daily mean values taken throughout the year)
24 h	100 to 150 (daily mean value)

Table 1-3

Emission Limits from New Municipal Waste Incinerators (89/369/EEC, Article 3)

Pollutant	Less than* 1 ton/h	1 ton/h or more but less than 3 tons/h	3 tons/h
Total dust	200	100	30
Heavy metals			
Pb +Cr+Cu+Mn	-	5	5
Ni+As	-	1	1
Cd and Hg	-	0.2	0.2
Hydrochloric acid	250	100	50
Hydrofluoric acid	-	4	2
Sulfur dioxide	-	300	300

For these values standardized conditions are: temperature of 272 K, pressure of 101.3 kPa, 11% oxygen or 9% carbon dioxide, dry gas.

* The emission limit values may refer to an oxygen level of 17%, in which case the concentration values may not exceed those listed, divided by 2.5.

Emission limit values in mg/nm^3 as a function of the nominal capacity of the incineration plant

Table 1-4

Emissions Limitations and Reductions for Sulfur Dioxide and Nitrogen Oxides.

Ceilings and Reduction Targets for Emissions of SO_2 from Existing Plants[1][2]

	0	1	2	3	4	5	6	7	8	9
Member State	SO_2 Emissions by Large Combustion Plants 1980 ktonnes	Emission Ceiling (ktonnes/year)			% Reduction over 1980 Emissions			% Reduction over Adjusted 1980 Emissions		
		Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
		1993	1998	2003	1993	1998	2003	1993	1998	2003
Belgium	530	318	212	159	- 40	- 60	- 70	- 40	- 60	- 70
Denmark	323	213	141	106	- 34	- 56	- 67	- 40	- 60	- 70
France	1910	1146	764	573	- 40	- 60	- 70	- 40	- 60	- 70
Germany	2225	1335	890	668	- 40	- 60	- 70	- 40	- 60	- 70
Greece	303	320	320	320	+ 6	+ 6	+ 6	- 45	- 45	- 45
Ireland	99	124	124	124	+ 25	+ 25	+ 25	- 29	- 29	- 29
Italy	2450	1800	1500	900	- 27	- 39	- 63	- 40	- 50	- 70
Luxemburg	3	1.8	1.5	1.5	- 40	- 50	- 60	- 40	- 50	- 50
Netherlands	299	180	120	90	- 40	- 60	- 70	- 40	- 60	- 70
Portugal	115	232	270	206	+102	+135	+ 79	- 25	- 13	-34
Spain	2290	2290	1730	1440	0	- 24	- 37	- 21	- 40	- 50
United Kingdom	3883	3106	1553	- 60	- 20	- 40	- 60	- 20	- 40	- 60

[1] Additional emissions may arise from capacity authorized on or after 1 July 1987.

[2] Emissions coming from combustion plants authorized before 1 July 1987, but not yet in operation before that date, and which have not been taken into account in establishing the emission ceilings fixed by this Table shall either comply with the requirements established by this Directive for new plants or be accounted for in the overall emissions from existing plants, which must not exceed the ceilings fixed in this Table.

Ceilings and Reduction Targets for Emissions of NO_x from Existing Plants[1][2]

	0	1	2	3	4	5	6
Member State	NO_x Emissions as NO_2 by Large Combustion Plants 1980 ktonnes	Emission Ceiling (ktonnes/year)		% Reduction over 1980 Emissions		% Reduction over Adjusted 1980 Emissions	
		Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2
		1993[3]	1998	1993[3]	1998	1993[3]	1998
Belgium	110	88	66	-20	-40	-20	-40
Denmark	124	121	81	-3	-35	-10	-40
France	400	320	240	-20	-40	-20	-40
Germany	870	696	522	-20	-40	-20	-40
Greece	36	70	70	+94	+94	0	0
Ireland	28	50	50	+79	+79	0	0
Italy	580	570	428	-2	-26	-20	-40
Luxembourg	3	2,4	1,8	-20	-40	-20	-40
Netherlands	122	98	73	-20	-40	-20	-40
Portugal	23	59	64	+157	+178	-8	0
Spain	366	368	277	+1	-24	-20	-40
United Kingdom	1016	864	711	-15	-30	-15	-30

[1] Additional emissions may arise from capacity authorized on or after 1 July 1987.

[2] Emissions coming from combustion plants authorized before 1 July 1987, but not yet in operation before that date, and which have not been taken into account in establishing the emission ceilings fixed by this Table shall either comply with the requirements established by this Directive for new plants or be accounted for in the overall emissions from existing plants, which must not exceed the ceilings fixed in this Table.

[3] Member States may for technical reasons delay up to two years the phase 1 date for reduction in NO_x emissions by notifying the Commission within one month of the notification of this Directive.

Table 1-5

Emission Limit Values for Sulfur Dioxide for New Plants

Gaseous fuels

Type of fuel	Limit values (mg/Nm^3)
Gaseous fuels in general	35
Liquefied gas	5
Low caloric gases from gasification of refinery residues, coke oven gas, blast-furnace gas	800
Gas from gasification of coal	([1])

([1]) The Council will fix the emission limit values applicable to such gas at a later stage on the basis of proposals from the Commission to be made in the light of further technical experience.

Table 1-6

Emission Limit Values for NO_x for New Plants

Type of fuel	Limit values (mg/Nm^3)
Solid in general	650
Solid with less than 10% volatile compounds	1300
Liquid	800
Gaseous	350

Table 1-7

Emission Limit Values for Dust for New Plants
(Annex vii of 88/609/EEC)

Type of Fuel	Thermal Capacity (MW)
Solid	≥500
	<500
Liquid ([1])	All Plants
Gaseous	All Plants

([1]) A limit value of 100 mg/Nm^3 may be applied to plants with a capacity of less than 500 MWth burning liquid fuel with an ash content of more than 0.06%.

Table 1-8

Limits on Importation of CFC's and Halons
(Annex II of Council Regulation No. 3322/88)

Substance being imported	for 12-mo periods from 1 July 1989 to 30 June 1993	for 12-mo periods from 1 July 1993 to 30 June 1998	for 12 mo period from 1 July 1998
CFC-11, CFC-12, CFC-113, CFC-114, CFC-115	2321 metric tons	1857 metric tons	1161 metric tons

Substance being imported	For 12-mo periods from 1 January 1992
Halon-1211, halon-1301, and halon 2402	700 metric tons

Table 1-9

Useful Efficiency Requirements

Type of Boiler	Range of Power Output	Efficiency at rated output		Efficiency at partload	
	kW	Average boiler-water temperature (in °C)	Efficiency requirement expressed (in %)	Average boiler-water temperature in (°C)	Efficiency requirement expressed (in %)
Standard boilers	4 to 400	70	$\geq 84 + 2$ logPn	≥ 50	$\geq 80 + 3$ logPn
Low-temperature boilers (*)	4 to 400	70	$\geq 87{,}5 + 1{,}5$ logPn	40	$\geq 87{,}5 + 1.5$ logPn
Gas condensing boilers (*)	4 to 400	70	$\geq 91 + 1$ logPn	30 (**)	$\geq 97 + 1$ logPn

(*) Including condensing boilers using liquid fuels.

(**) Temperature of boiler water-supply.

INSTALLATION:	COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT EEC	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

(1) BCE (Base Civil Engineering/Environmental Planning) (2) BEE (Bioenvironmental Engineering) (3) Air Pollution Source Operator (4) Fuels - Management Branch (5) Transportation - Maintenance Branch (6) LGS (Base Supply) (7) MWR (Morale, Welfare, and Recreation) Auto Hobby Shop (8) Refrigeration Shops (BCE) (9) Equipment Maintenance Squadron (10) AAFES (Army Air Force Exchange Service) Gas Station

Section 2

HAZARDOUS MATERIALS MANAGEMENT

Section 2

HAZARDOUS MATERIALS MANAGEMENT

A. EC Legislation

The European Economic Community (EEC) regulations and directives related to hazardous materials are aimed at the protection of the environment from all substances and preparations which have characteristics of ecotoxicity or which could pollute the environment. They are also concerned with the restoration, preservation, and improvement of the quality of human life. The marketing and possession of dangerous substances and preparations is legislated in order to protect the public, particularly persons using dangerous substances and preparations.

Specific commodities with dangerous substances as constituents are not allowed on the European market and the possession of these items is prohibited or restricted. This includes certain types of lamps, ashtrays, and other ornamental objects having glass containers holding liquids (i.e. carbon tetrachloride, trichloroethylene, or tetrachloroethylene) which are highly toxic, harmful, or highly flammable. In addition to causing fires and explosions, these objects are not always sufficiently stable and are easily overturned, especially by children, with the result that the glass container breaks and toxic or harmful substances are emitted, to which the children fall first victims.

Lead compounds in general, and in particular lead salts that are readily soluble in the stomach are dangerous to human health, therefore their use in certain decorative paints is restricted. This restriction includes lead compounds used in anti-fouling preparations applied as protective coatings to boat hulls and/or underwater equipment, which have harmful effects on aquatic organisms. The use of other chemical compounds, such as arsenic, mercury and tin is also regulated.

B. Implementation of Treaties and Conventions.

- None applicable to this section.

C. Key Compliance Definitions

- *Preparations* - mixtures or solutions composed of two or more substances (76/769/EEC, Article 1).

- *Substances* - chemical elements and their compounds as they occur in the natural state or as produced by industry (76/769/EEC, Article 1).

HAZARDOUS MATERIALS MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS	CONTACT THESE PERSONS OR GROUPS:(*)
All installations	2-1 through 2-3	(1)(2)(4)
If the installation use lead paint	2-4	(1)(2)(4)(5)
If the installation uses mercury compounds	2-5	(1)(2)(4)(5)(6)
If the installation uses arsenic compounds	2-6	(1)(2)(3)(4)(5)

(*)CONTACT/LOCATION CODE:

(1) LGS (Base Supply)
(2) BCE (Base Civil Engineering)
(3) Fire Department
(4) Safety Officer
(5) BEE (Bioenvironmental Engineering)
(6) Disaster Preparedness Office

HAZARDOUS MATERIALS MANAGEMENT

Records to Review

- Spill Control and Contingency Plan
- Emergency Plan documents
- Material Safety Data Sheets
- Inventory records
- Training records
- Inspection records
- Shipping papers
- Placarding of hazardous materials

Physical Features to Inspect

- Hazardous material storage areas
- Shop activities
- Shipping and receiving area

Sources to Interview

- LGS (Base Supply)
- BCE (Base Civil Engineering)
- Fire Department
- BEE (Bioenvironmental Engineering)
- Safety Manager
- Disaster Preparedness Office

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
2-1. Determine actions or changes since the previous review of hazardous materials (GMP).	Determine if noncompliance issues have been resolved by obtaining copies of previous reports. (1)(2)
2-2. All relevant regulations, directives, and guidance documents should be maintained at the installation (GMP).	Determine if the following documents are maintained at the installation: (1)(2) - 76/769/EEC, *Council Directive of 27 July 1976 on the Approximation of laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations as amended by 79/663/EEC, 82/806/EEC, 82/828/EEC, 83/264/EEC, 85/467/EEC, 85/610/EEC, 89/677/EEC, 89/678/EEC, and 91/339/EEC.* - 85/467/EEC, *Council Directive of 1 October 1985 amending for the sixth time (PCBs and PCTs), Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations.* - 89/677/EEC, *Council Directive of 21 December 1989 amending for the eighth time Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations.*
2-3. Installations may not import or possess certain ornamental items that contain dangerous substances and preparations (79/663/EEC, Article 1).	Verify that liquids and preparations with the following labels are not used in ornamental objects intended to produce light or color effects by means of different phases, for example in ornamental lamps and ashtrays: (1)(2)(4) - highly toxic - toxic - harmful - corrosive - explosive - extremely flammable - highly flammable - flammable - and any liquid with a flashpoint below 55 ^{o}C.

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BEE (Bioenvironmental Engineering) (6) Disaster Preparedness Office

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-4. Installations may not use certain lead compounds in paints (89/677/EEC, Article 1.17(.18)).	Verify that neutral anhydrous carbonate (Pb CO_3) and lead hydrocarbonate (2 Pb CO_3 $Pb(OH)_2$) are not used as substances and constituents of preparations intended for use as paints, except for the restoration and maintenance of works of art and historic buildings and their interiors when so authorized by the Host Nation for white lead in paint. (1)(2)(4)(5) Verify that the lead sulfates $PSBO_4$ (1:1) and Pb_x SO_4 are not used as substances and constituents of preparations intended for use as paints, except for the restoration and maintenance of works of art and historic buildings and their interiors when so authorized by the Host Nation for white lead in paint. (1)(2)(4)(5)
2-5. Installations may not use mercury compounds for certain purposes (89/677/EEC, Article 1.19).	Verify that the installation does not use mercury compounds as substances and constituents of preparations intended for the hulls of boats, any totally or partly submerged appliances or equipment, in the preservation of wood, or in the treatment of industrial waters irrespective of their use. (1)(2)(4)(5)(6)
2-6. Installations may not use arsenic compounds to treat industrial waters or in the preservation of wood (89/677/EEC, Article 1.20).	Verify that the installation does not use arsenic compounds in the preservation of wood. (1)(2)(3)(4)(5) (NOTE: This ban does not apply to solutions of inorganic salts of the CCA (copper--chromium--arsenic) type employed in industrial installations using vacuum or pressure to impregnate wood.) (NOTE: Host Nations may authorize the use of the DFA (dinitrophenol--fluoride--arsenic) type for retreatment in situ of wooden poles already in place and supporting overhead cables; such preparations must be employed by professionals using vacuum or pressure.) Verify that the installation does not use arsenic compounds as substances and constituents of preparations intended for use in the treatment for industrial waters, irrespective of their use.

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BEE (Bioenvironmental Engineering) (6) Disaster Preparedness Office

INSTALLATION:	COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT EEC	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BEE (Bioenvironmental Engineering) (6) Disaster Preparedness Office

Section 3

HAZARDOUS WASTE MANAGEMENT

Section 3

HAZARDOUS WASTE MANAGEMENT

A. EC Legislation

European Economic Community regulations and directives are primary aimed at the reduction of unfair trade within the Community due to a disparity between the provisions on disposal of toxic and dangerous waste among Member States. However, one of the essential aims of Community action is the protection of the environment and the improvement of the quality of life. A program for the prevention, recycling, and recovery of toxic and dangerous waste and the use of recovered materials has been initiated. A uniform system of permits for the storage, treatment, and/or tipping of toxic and dangerous waste has also been enacted. An efficient and coherent system of supervision and control of the transfrontier shipment of hazardous waste has been initiated to ensure toxic and dangerous waste is disposed of under the best possible conditions.

- 78/319/EEC, *Council Directive of 20 March 1978 on toxic and dangerous waste.* Member States are required to legislate measures that regulate the disposal of toxic and dangerous waste. Installations should be aware of and maintain copies of host nation regulations on the disposal of toxic and dangerous waste.

  Member States are also required to regulate the storing, packing and reporting of toxic and dangerous waste. The installation should be aware of and maintain copies of host nation regulations on the storing, packing, and reporting of toxic and dangerous waste. Toxic and dangerous waste at the installation should be, where necessary, kept separate from other matter and residues when being collected, transported, stored, or deposited. The packaging of toxic and dangerous waste should be appropriately labeled so that it indicates the composition and quantity of the waste. Toxic and dangerous waste should be recorded and identified in respect of each site where the waste is or has been deposited.

- 91/689/EEC, *Council Directive of 12 December 1991 on hazardous waste.* Member states are required to take measures necessary to ensure that on every site where discharge of hazardous waste takes place, the waste is recorded and identified. Installations should be aware of host nation laws and regulations requiring recordkeeping.

Member states are required to take measures to ensure that parties which dispose of, recover, collect or transport hazardous waste do not mix different categories of hazardous waste ot mix hazardous waste with nonhazardous waste. Installations which dispose of, recover, collect, and transport hazardous waste should be aware of host nation laws and regulations restricting the mixing of hazardous wastes.

B. Implementation of Treaties and Conventions

- None applicable to this section.

C. Key Compliance Definitions

- *Consignee of the Waste* - the person or undertaking to whom or to which the waste is shipped for disposal (84/631/EEC, Article 1(e)).

- *Competent Authorities* - the competent authority or authorities designated by the Member State of destination of the waste, of the Member State of dispatch of the waste and, where applicable, of the Member State or States of transit of the waste (84/631/EEC, Article 1(b)).

- *Disposal* - the collection, sorting, carriage and treatment of toxic and dangerous waste, as well as its storage and tipping above or under ground the transformation operations necessary for its recovery, re-use, or recycling (78/319/EEC, Article 1 (c)).

- *Hazardous Waste* - includes:

    - toxic and dangerous waste as defined below, except for the chlorinated and organic solvents (84/631/EEC, Article 1(a)).
    - polychlorinated biphenyls, polychlorinated terphenyls, and mixtures containing one or both of such substances

- *Holder of the Waste* - the producer of the waste or any other person or undertaking who or which proposes to carry out or to have carried out a transfrontier shipment of waste (84/631/EEC, Article 1(d)).

- *Producer of the Waste* - anyone whose activities produce waste ('original producer') and/or anyone who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of this waste (84/631/EEC, Article 1(c)).

- *Toxic and Dangerous Waste* - waste containing or contaminated by the following substances or materials of such a nature, in such quantities or in such concentrations as to constitute a risk to health or the environment

  - arsenic and arsenic compounds
  - mercury and mercury compounds
  - cadmium and cadmium compounds
  - thallium and its compounds
  - beryllium and its compounds
  - chrome 6 compounds
  - lead and its compounds
  - antimony and its compounds
  - phenols and their compounds
  - cyanides and their compounds
  - isocyanates
  - organic-halogen compounds excluding inert polymeric materials and other substances referred to in this list or covered by other Directives concerning the disposal of toxic or dangerous waste
  - chlorinated solvents
  - organic solvents
  - biocides an dphyto-pharmaceutical substances
  - tarry materials from refining and tar residues from distilling pharmaceutical compounds
  - peroxides, clhorates, perchlorates and azides
  - ethers
  - chemical laboratory materials, not identifiable and/or new, whose effects on the environment are not known
  - asbestos (dust and fibers)
  - selenuium and its compounds
  - tellurium and its compounds
  - aromatic polycyclic compounds (with carcinogenic effects)
  - metal carbonyls
  - soluble copper compounds
  - acids and/or basic substances used in the surface treatment and finishing of metals (78/319/EEC, Article 1(b)).

- *Waste* - any substance or object which the holder disposes of or is required to dispose of pursuant to the provisions of national law in force (78/319/EEC, Article 1(a)).

HAZARDOUS WASTE MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS: (*)
All Installations	3-1 through 3-13	(1)(2)(3)(5)(6)(7)(8)(10)
Installations which ship hazardous waste across borders	3-14 through 3-18	(1)(7)

(*)CONTACT/LOCATION CODE:

(1) BCE (Environmental Planning)
(2) *DRMO (Defense and Reutilization Marketing Office)*
(3) Accumulation Point Managers
(5) TSD (Treatment, Storage, Disposal) facility officer
(6) Safety manager
(7) BEE (Bioenvironmental Engineer)
(8) Transportation officer
(10) Generating activities

Records to Review

- Generator (including TSDFs if they are also considered generators)

  Hazardous waste manifests
  Manifest exception reports
  Employee training documentation
  Contingency plan
  Notifications of hazardous waste oil fuel marketing or blending activity
  Hazardous waste disposal turn-in document (DD Form 1348-1)

- In addition to the above, TSDFs would be required to have:

  Unmanifested waste reports
  Facility audit reports (inspection log)
  Waste analysis plan(s)
  Operating record
  Groundwater monitoring records and annual reports
  Closure/Post-closure plans
  Closure/Post-closure notices (where applicable)
  Other documents as required by the permit

Physical Features to Inspect

- Disposal sites
- Generating areas
- Accumulation points
- Incinerators
- Vehicles used for transport
- Storage facilities (including drums)

Sources to Interview

- BCE (Environmental Coordinator)
- DRMO (Defense Reutilization and Marketing Office)
- Accumulation Point Managers/Operators
- TSD (Treatment, Storage, and Disposal) Facility Officer
- Safety Manager
- BEE (Bioenvironmental Engineer)
- Transportation Officer
- Generating Activities

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
3-1. Determine actions or changes since the previous review of hazardous materials. (1)	Determine if noncompliance issues have been resolved by obtaining a copy of the previous report. (1)
3-2. All relevant regulations, directives, and guidance documents should be maintained at the installation (GMP).	Determine if the following documents are maintained at the installation: (1)(7) - 78/319/EEC, *Council Directive of 20 March 1978 on toxic and dangerous waste* - 84/631/EEC, *Council Directive of 6 December 1984 on the supervision and control within the European Community of the transfrontier shipment of hazardous waste* - 86/279/EEC, *Council Directive of 12 June 1986 amending Directive on the supervision and control within the European Community of the transfrontier shipment of hazardous waste.*
3-3. Installations are required to follow certain measures to ensure the safe handling, storage, and disposal of toxic and dangerous waste (78/319/EEC, Article 6).	Verify that toxic and dangerous waste is disposed of without endangering human health and without harming the environment, and in particular: (1)(3)(5)(10) - without risk to water, air, soil, plants, or animals - without causing a nuisance through noise or odors - without adversely affecting the countryside or places of special interest.
3-4. Installations which carry out the storage, treatment and/or disposal of toxic and dangerous waste must obtain a permit (78/319/EEC, Article 9.1).	Verify that installations that store, treat and/or dispose of toxic and dangerous waste have obtained and have available for inspection a permit granted by the competent Host Nation authority. (1)(5)
3-5. Installations that do not possess a permit for the storage, treatment and/or disposal of toxic and dangerous waste are required to promptly dispose of toxic waste at an approved facility (78/319/EEC, Article 10).	Verify that if the installation does not have a toxic and dangerous waste storage, treatment and/or disposal permit, the waste is disposed of at an approved facility as soon as possible. (1)(2)(3)(7)(10)

(1) BCE (Environmental Planning) (2) DRMO (Defense and Reutilization Marketing Office) (3) Accumulation Point Managers (5) TSD (Treatment, Storage, Disposal) facility officer (6) Safety manager (7) BEE (Bioenvironmental Engineer) (8) Transportation officer (10) Generating activities

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-6. Installations are required to minimize a toxic threat to the population or the environment in case of an emergency or grave danger (78/319/EEC, Article 13).	Verify that the installation has a plan to minimize the danger to the public and environment in cases of emergency or grave danger due to toxic and dangerous waste accidents. (1)(6)(7)
3-7. Installations that produce store, treat, and/or dispose of toxic and dangerous waste are required to comply with certain recordkeeping and reporting regulations (78/319/EEC, Article 14.1).	Verify that installations that produce, store, treat, and/or dispose of toxic and dangerous waste do the following: (1)(5)(6)(8) - keep a record of the quantity, nature, physical and chemical characteristics and origin of the waste, and of the methods and sites used for disposing of the waste, including the dates of receipt and disposal - make this information available to the competent authorities upon request.
3-8. Installations that transport toxic and dangerous waste are required to follow certain documentation requirements (78/319/EEC, Article 14.2 and 14.3).	Verify that when toxic and dangerous waste is transported for disposal it is accompanied by an identification form containing at least the following details: (1)(8) - nature - composition - volume or mass of the waste - name and address of the producer or of the previous holder(s) - name and address of the next holder or of the final disposer - location of the site of final disposal where known. Verify that the documentary evidence that the disposal operations have been carried out is kept as long as the Host Nation deems appropriate. (1)(8) (NOTE: The length of time installations are required to maintain pertinent documents should be indicated in the toxic waste and dangerous waste handling permit.)
3-9. Installations that are subject to toxic and dangerous waste inspection are required to provide all necessary assistance to complete the examination (78/319/EEC, Article 15.2).	Verify that installations undergoing an inspection by competent authority provide all necessary assistance to enable them to carry out any examinations, inspections, or investigations concerning the waste, to take samples and to gather any information necessary for the fulfillment of their duties. (1)(5)(7)

(1) BCE (Environmental Planning) (2) DRMO (Defense and Reutilization Marketing Office) (3) Accumulation Point Managers (5) TSD (Treatment, Storage, Disposal) facility officer (6) Safety manager (7) BEE (Bioenvironmental Engineer) (8) Transportation officer (10) Generating activities

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-10. Installations which discharge hazardous waste are required to record and identify all discharged waste (91/689/EEC, Article 2.1).	Verify that the installation records and identifies all discharged hazardous waste. (1)(5)(7) (NOTE: For the purposes of this entry, hazardous waste means waste which is designated as hazardous waste by the Host Nation in accordance with 91/689/EEC, Article 1.4 and 75/442/EEC, Article 18. Under these Directives, each Member State is required to draw up a list of wastes to be treated as hazardous wastes certain characteristics specified in the Annexes to 91/689/EEC.)
3-11. Installations are required to make and retain records regarding certain operations involving hazardous waste (91/689/EEC, Article 4.2).	Verify that the installation keeps a record of the quantity, nature, origin, and where relevant, the destination, frequency of collection, mode of transport and treatment method in respect of any waste referred to in Table 8-1 and the operations referred to in Table 8-2. (1)(3)(5)(7)(10) Verify that the installation preserves such records for at least three years (yr). (NOTE: Records regarding the transportation of the wastes described in Table 1 and operations described in Table 2 which involve the transportation of wastes need only be preserved 12 months (mo).) (NOTE: For the purposes of this entry, hazardous waste means waste which is designated as hazardous waste by the Host Nation in accordance with 91/689/EEC Article 1.4 and 75/442/EEC, Article 18. Under these Directives, each Member State is required to draw up a list of wastes to be treated as hazardous wastes certain characteristics specified in the Annexes to 91/689/EEC.)

3-12. Installations which dispose of, recover, collect or transport hazardous waste may not mix different categories of hazardous waste or mix hazardous waste with nonhazardous waste (91/689/EEC, Article 2.2).	Verify that the installation does not mix different categories of hazardous waste or hazardous waste with nonhazardous waste. (1)(2)(3)(5)(10)
	
	(NOTE: The restrictions in this entry do not apply where the installation:
	
	- obtains a permit from the competent authority
	- ensures that the waste is recovered or disposed of without endangering human health without using processes or methods which could harm the environment, and in particular:
	  - without risk to water, air, soil, and plants and animals
	  - without causing a nuisance through noise or odors
	  - without adversely affecting the countryside or places of special interest.)
	
	(NOTE: Where hazardous waste is already mixed with other waste, substances, or materials, separation must be effected, where technically and economically feasible.)
	
	(NOTE: For the purposes of this entry, hazardous waste means waste which is designated as hazardous waste by the Host Nation in accordance with 91/689/EEC, Article 1.4 and 75/442/EEC, Article 18. Under these Directives, each Member State is required to draw up a list of wastes to be treated as hazardous wastes certain characteristics specified in the Annexes to 91/689/EEC.)

(1) BCE (Environmental Planning) (2) DRMO (Defense and Reutilization Marketing Office) (3) Accumulation Point Managers (5) TSD (Treatment, Storage, Disposal) facility officer (6) Safety manager (7) BEE (Bioenvironmental Engineer) (8) Transportation officer (10) Generating activities

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-13. All transfers of hazardous waste must be accompanied by the appropriate identification form (91/689/EEC, Article 5.3, Annex I). (1)(2)(3)(5)(8)	Verify that the installation prepares the appropriate form whenever hazardous waste is transferred. (NOTE: The appropriate forms are attached following Table 8-2. See Annex I to 84/631/EEC.) (NOTE: For the purposes of this entry, hazardous waste means waste which is designated as hazardous waste by the Host Nation in accordance with 91/689/EEC, Article 1.4 and 75/442/EEC, Article 18. Under these Directives, each Member State is required to draw up a list of wastes to be treated as hazardous wastes certain characteristics specified in the Annexes to 91/689/EEC.)
TRANSFRONTIER SHIPMENT OF HAZARDOUS WASTE	

3-14. Installations intending to ship hazardous waste from one Member State to another or a number of Member States in the EEC must follow certain notification procedures (84/631/EEC, Article 3.1, as amended by 86/279/EEC, Article 1).	Verify that the competent authorities of member states affected by the installation's transportation of hazardous waste are notified prior to shipment. (1)(7)
	
	Verify that notification is done by means of a uniform consignment note. (1)(7)
	
	Verify that the installation provides the competent authorities responsible for issuing the acknowledgement of notification the following information: (1)(7)
	
	- the source and composition of the waste, including
	  - the producer's identity
	  - in the case of waste from various sources, a detailed inventory of the waste
	  - the identity of the original producers, where such information exists
	- the provision made for routes and insurance against damage to third parties
	- the measures to be taken to ensure safe transport and, in particular, compliance by the carrier with the conditions laid down by the Member States concerned for the exercise of the transport operations
	- the existence of a contractual agreement with the consignee of the waste, who should possess adequate technical capacity for the disposal of the waste without endangering human health or the environment.

3-15. Installations may not transport hazardous waste across frontiers prior to Host Nation authorization (84/631/EEC, Article 4.1, as amended by 86/279/EEC, Article 1).	Verify that the installation does not transport hazardous waste across frontiers until appropriate competent authorities have replied that they have received the installation's initial notification of transport. (1)(7)

(1) BCE (Environmental Planning) (2) DRMO (Defense and Reutilization Marketing Office) (3) Accumulation Point Managers (5) TSD (Treatment, Storage, Disposal) facility officer (6) Safety manager (7) BEE (Bioenvironmental Engineer) (8) Transportation officer (10) Generating activities

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-16. Installations must follow certain consignment note requirements prior to shipment of hazardous waste (84/631/EEC, Article 6).	Verify that the installation completes and returns the consignment note sent back by the competent authorities before shipment is carried out. (1)(7) Verify that a copy of the consignment note, including acknowledgement, accompanies each shipment. (1)(7) Verify that all parties involved in the operation complete the consignment note where indicated, sign it, and retain a copy of it. (1)(7) Verify that within 15 days following receipt of the waste, the consignee of the waste sends to the holder of the waste, and to the competent authorities of the member states concerned, copies of the completed consignment note. (1)(7) Verify that copies of consignment notes are kept for at least two yr. (1)(7)
3-17. Transfrontier shipments must comply with certain operational requirements (84/631/EEC, Article 8.1).	Verify that the following conditions are met by the installation: (1)(7) - the waste is properly packed - the containers have appropriate labels indicating the nature, composition, and quantity of the waste, the telephone number(s) of the person(s) from whom instructions or advice may be obtained at all times during shipment - instructions to be followed in the event of danger or accident accompany the waste - the labels and instructions are in the languages of member states concerned. (NOTE: Member States may designate border crossing-points for the shipment of hazardous waste where necessary.)
3-18. Installations are required to take all necessary measures to protect the quality of the environment during the transport of waste (84/631/EEC, Article 11.1).	Verify that the installation, without prejudice to national provisions concerning civil liability, irrespective of the place in which the waste is disposed of, take all necessary steps to dispose of or arrange for the disposal of the waste so as to protect the quality of the environment. (1)(7)

(1) BCE (Environmental Planning) (2) DRMO (Defense and Reutilization Marketing Office) (3) Accumulation Point Managers (5) TSD (Treatment, Storage, Disposal) facility officer (6) Safety manager (7) BEE (Bioenvironmental Engineer) (8) Transportation officer (10) Generating activities

Table 3-1

Categories of Waste

Q1 production or consumption residues not otherwise specified below

Q2 off-specification products

Q3 products whose date for appropriate has expired

Q4 materials spilled, lost or having undergone other mishap, including any materials, equipment, etc. contaminated as a result of the mishap

Q5 materials contaminated or soiled as a result of planned actions (i.e. residues from cleaning operations, packing materials, containers, etc.)

Q6 unusable parts (i.e. reject batteries, exhausted catalysts, etc.)

Q7 substances which no longer perform satisfactorily (i.e. contaminated acids, contaminated solvents, exhaused termpering salts, etc.)

Q8 residues of industrial processes (i.e. slags, still bottoms, etc.)

Q9 residues from pollution abatement processes (i.e. scrubber sludges, baghouse dusts, spent filters, etc.)

Q10 machining/finishing residues (i.e. lathe turnings, mill scales, etc.)

Q11 residues from raw materials extraction and processing (i.e. mining residues, oil field slops, etc.)

Q12 adulterated materials (i.e. oils contaminated with PCBs, etc.)

Q13 any materials, substances or products whose use has been banned by law

Q14 products for which the holder has no further use (i.e. agricultural, household, office, commercial and shop discards, etc.)

Q15 contaminated materials, substances or products resulting from remedial action with respect to land

Q16 any materials, substances or products which are not contained in the above categories.

Table 3-2

Part I - Annex II A

Disposal Operations

D1 Tipping above or underground (i.e. landfill, etc.)

D2 Land treatment (i.e. biodegradation of liquid or sludge discards in soils, etc.)

D3 Deep injection (i.e. injection of pumpable discards into wells, salt domes or naturally occurring repositories, etc.)

D4 Surface impoundment (i.e. placement of liquid or sludge discards into pits, ponds, or lagoons, etc.)

D5 Specially engineered landfill (i.e. placement intolined discrete cells which are capped and isolated from one another and the environment, etc.)

D6 Release of sold waste into a water body except seas/oceans

D7 Release into seas/oceans including seabed insertion

D8 Biological treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are disposed of by means of any of the operations in this Annex

D9 Physico-chemical treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are disposed of by means of any of the operations in this Annex (i.e. evaporation, drying, calcination, etc.)

D10 Incineration on land

D11 Incineration at sea

D12 Permanent storage (i.e. emplacement of containers in a mine, etc.)

D13 Blending or mixing prior to submission to any of the operations in this Annex

D14 Repackaging prior to submission to any of the operations in this Annex

D15 Storage pending any of the operations in this Annex, excluding temporary storage, pending collection, on the site where it is produced.

Table 3-2 (continued)

Part II - Annex II B

Operations Which May Lead to Recovery

R1 Solvent reclamation/regeneration

R2 Recycling/reclamation of organic substances which are not used as solvents

R3 Recycling/reclamation of metals compounds

R4 Recycling/reclamation of other inorganic compounds

R5 Regeneration of acids or bases

R6 Recovery of components used for pollution abatement

R7 Recovery of components from catalysts

R8 Oil re-refining or other re-uses of oil

R9 Use principally as a fuel or other emans to generate energy

R10 Spreading on land resulting in benefit to agriculture or ecological improvement, including composting and other biological transformation processes, except animal carcases, fecal matter and other natural, non-dangerous substances used in farming

R11 Use of wastes obtained from any of the operations numbered R1-R10

R12 Exchange of wastes for submission to any of the operations numbered R1-R11

R13 Storage of materials intended for submission to any operation in this Annex, excluding temporary storage, pending collection, on the site where it is produced.

INSTALLATION:	COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT EEC	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

(1) BCE (Environmental Planning) (2) DRMO (Defense and Reutilization Marketing Office) (3) Accumulation Point Managers (5) TSD (Treatment, Storage, Disposal) facility officer (6) Safety manager (7) BEE (Bioenvironmental Engineer) (8) Transportation officer (10) Generating activities

Section 4

NATURAL AND CULTURAL RESOURCES MANAGEMENT

Section 4

NATURAL AND CULTURAL RESOURCES MANAGEMENT

A. EC Legislation

EC legislation protecting wild flora and fauna is based on the recognition that wild flora and fauna constitute a natural heritage of aesthetic, scientific, cultural, recreational, economic, and intrinsic value that needs to be preserved and handed on to future generations.

The conservation of natural habitats is a vital component of the protection and conservation of wild flora and fauna. Based on this, the Council of Europe has mandated that the conservation of wild flora and fauna be taken into consideration by Community governments in their national goals and programs, and that international cooperation should be established to protect migratory species in particular.

Birds are of special concern in the European Economic Community. For many strata of European society birds are an important element in the quality of life and, for a large number of people, especially town-dwellers, they are the main point of contact with nature. Public opinion is coming to consider migratory birds more and more as a common heritage and not as the exclusive property of the country where they may be at any given time. The excessive mortality of nearly half the autochthonous species in Europe is considered to significantly harm the natural environment and adversely impact a number of economic sectors.

The conservation of all species of naturally occurring birds in the wild state in the European territory of the Member States covers the protection, management, and control of these species and lays down rules for their exploitation. EEC laws apply to birds, their eggs, nests, and habitats.

A coherent European network of special areas of conservation, called Europa 2000, is being set up to maintain or restore, at favorable conservation levels, natural habitats and species of wild fauna and flora.

EEC laws on the conservation of flora and fauna do not apply to Greenland due to the fundamentally different ecological conditions of from those of other regions in the Community.

- 79/409/EEC, *Council Directive of 2 April 1979 on the conservation of wild birds*. Member States are required to take measures to maintain the population of the species of naturally occurring birds at a level which corresponds in particular to ecological, scientific, and cultural requirements. Installations should be aware of Host Nation regulations legislated to maintain bird populations.

  Member States are required to take measures to preserve, maintain, or re-establish a sufficient diversity and area of habitat for all species of birds naturally occurring in the wild state. Installations should meet Host Nation regulations implementing the following measures for all birds naturally occurring in the wild state: creation of protected areas; upkeep and mangement in accordance with the ecological needs of habitats inside and outside the protected zones; re-establishment of destroyed biotopes; and creation of biotopes.

  Member States are required to enact preservation measures for regularly occurring migratory species. Installations should be aware of host nation regulations concerning migratory species.

  Member States are required to take appropriate measures to avoid pollution or deterioration of habitats or any disturbances affecting birds. Installation should be aware of Host Nation measures limiting the pollution or deterioration of bird habitats.

  Member States are required to enact regulations for a general system of bird protection for certain species. Installations should be aware of Host Nation regulations protecting birds and prohibiting in particular: deliberate killing or capture by any method; deliberate destruction of, or damage to, their nests and eggs or removal of their nests; taking their eggs in the wild and keeping these eggs even if empty; deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant; and keeping birds of species the hunting and capture of which is prohibited.

- 82/72/EEC, *Council Decision of 3 December 1981 concerning conclusion of the Convention on the Conservation of European Wildlife and Natural Habitats*. Member States are required to take certain measures to maintain the population of wild flora and fauna. Installations should be aware of any Host Nation measures taken to maintain the population of wild flora and fauna at risk locally.

  Member States are required to takes steps to promote national policies for the conservation of wild flora, wild fauna, and natural habitats. Installations should be aware of any Host Nation policies for the conservation of wild flora, wild fauna, and natural habitats, with particular attention to endangered species and vulnerable species, especially endemic ones, and endangered habitats.

Member States are required to take appropriate and necessary legislative and administrative measures to ensure the conservation of the habitats of the wild flora and fauna species. Installations should be aware of any Host Nation legislative and administrative measures taken to ensure the conservation of the habitats of the wild flora and fauna species.

Member States are required to protect areas that are of importance to migratory species Installations should be aware of any Host Nation laws protecting areas that are of importance for migratory species.

Member States are required to enact measures to protect certain wild fauna species. Installations should not allow the exploitation of wild fauna species which are protected by Host Nation laws. Installations should be aware of Host Nation laws protecting wild fauna, specifically: closed season and/or other procedures regulating the exploitation; the temporary or local prohibition of exploitation in order to restore satisfactory population levels; and the regulation of sale, keeping for sale or offering for sale of live and dead wild animals.

- 82/461/EEC, *Council Decision of 24 June 1982 on the conclusion of the Convention on the Conservation of Migratory Species of Wild Animals.* Member States are required to enact measures for the protection of certain endangered species. Installations should be aware of Host Nation regulations protecting migratory species of wild animals. Installations should be aware of Host Nation regulations conserving and managing migratory species of wild animals.

- 92/43/EEC, *Council Directive of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.* Member States may make regulate the taking in the wild of specimens of certain flora and fauna species. Installations should be aware of legislative and administrative measures taken by the Host Nation to regulate the taking in the wild of the species of flora and fauna.

B. Implementation of Treaties and Conventions

The following conventions have been adopted by the EEC:

- Convention on the Conservation of European Wildlife and Natural Habitats.

- Convention on the Conservation of Migratory Species of Wild Animals.

C. Key Compliance Definitions

The following definitions have been taken from Article 1.1 of the Convention on the Conservation of Migratory Species of Wild Animals as adopted by 82/461/EEC, Article 1. The paragraph number within Article 1 of the Convention follows each definition.

- *Agreement* - an international agreement relating to the conservation of one or more migratory species (82/461/EEC Article 1 (j)).

- *Conservation Status of Migratory Species* - the sum of the influences acting on the migratory species that may affect its long-term distribution and abundance (82/461/EEC Article 1 (b)).

- *Conservation Status--Favorable* - 'conservation status' will be taken as 'favorable' when:

  - population dynamics data indicate that the migratory species is maintaining itself on a long term basis as a viable component of its ecosystems
  - the range of the migratory species is neither currently being reduced, nor is it likely to be reduced, on a long term basis
  - there is, and will be in the foreseeable future, sufficient habitat to maintain the population of the migratory species on a long term basis
  - the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management (82/461/EEC Article 1 (c)).

- *Conservation Status--Unfavorable* - 'conservation status' will be taken as 'unfavorable' if any conditions set out in subparagraph (c) of this paragraph is not met (82/461/EEC Article 1 (d)).

- *Endangered* - in relation to a particular migratory species means that the migratory species is in danger of extinction throughout all or a significant portion of its range (82/461/EEC Article 1 (e)).

- *Habitat* - any area in the range of a migratory species which contains suitable living conditions for that species (82/461/EEC Article 1 (g)).

- *Migratory Species* - the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries (82/461/EEC Article 1 (a)).

- *Party* - a state or any regional economic integration organization constituted by sovereign states which has competence in respect of the negotiation, conclusion, and application of international agreements in matters covered by this Convention for which this Convention is in force (82/461/EEC Article 1 (k)).

- *Range* - all the areas of land or water that a migratory species inhabits, stays in temporarily, crosses or overflies at any time on its normal migration route (82/461/EEC Article 1 (f)).

- *Range State* - in relation to a particular migratory species means any state (and where appropriate any other party referred to under subparagraph (κ) of this paragraph) that exercises jurisdiction over any part of the range of that migratory species, or a state, flag vessels of which are engaged outside national jurisdictional limits in taking that migratory species (82/461/EEC Article 1 (h)).

- *Taking* - means taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct (82/461/EEC, Article 1 (i)).

NATURAL AND CULTURAL RESOURCES MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS	CONTACT THESE PERSONS OR GROUPS(*)
All installations	4-1 and 4-2	(1)
All the installations with natural resources to manage	4-3 through 4-7	(1)
If the installation allows hunting onsite	4-8 through 4-13	(1)
Additional provisions	4-14 through 4-16	(1)

(*) CONTACT/LOCATION CODE:

(1) Natural Resources Manager (or Environmental Coordinator)

NATURAL AND CULTURAL RESOURCES MANAGEMENT

Records to Review

- For construction activities: documentation of finding of no adverse effect.
- Environmental Impact Statement
- Installation Master Plan
- Land Use Plan
- Historic Preservation Plan
- Fish and Wildlife Plan
- Outdoor Recreation Plan
- Cropland and Grazing Plan
- Forest Management Plan

Physical Features to Inspect

- Construction sites
- Site or landmark of historic of archaeological interest
- Facilities constructed in the past 2 years (yr)
- Wildlife containment areas
- Wildlife habitat, and land and water resources
- Equipment which could damage wildlife, its habitat, or land and water resources

Sources to Interview

- Natural Resources Manager (or Environmental Coordinator)

COMPLIANCE CATEGORY: NATURAL AND CULTURAL RESOURCES MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
4-1. Determine actions or changes since previous evaluation of natural and cultural resources management (GMP).	Obtain copy of previous review to determine whether noncompliance issues have been resolved. (1)
4-2. Copies of all relevant European Economic Community (EEC) and Host Nation regulations, directives and guidance documents on natural and cultural resources should be maintained by the installation (GMP).	Determine if copies of the following documents are maintained and kept current by the installation: (1) - 75/66/EEC, *Commission Recommendation of 20 December 1974 to Member States concerning the protection of birds and their habitats.* - 79/409/EEC, *Council Directive of 2 April 1979 on the conservation of wild birds.* - 81/854/EEC, *Council Directive of 19 October 1981 adapting, consequent upon the accession of Greece, Directive 79/409/EEC on the conservation of wild birds.* - 82/72/EEC, *Council Decision of 3 December 1981 concerning conclusion of the Convention on the Conservation of European Wildlife and Natural Habitats.* - 82/461/EEC, *Council Decision of 24 June 1982 on the conclusion of the Convention on the Conservation of Migratory Species of Wild Animals.* - 85/411/EEC, *Commission Directive of 25 July 1985 amending Council Directive 79/409/EEC on the conservation of wild birds.* - 86/122/EEC, *Council Directive of 8 April 1986 adapting, consequent upon accession of Spain and Portugal, Directive 79/409/EEC on the conservation of wild birds.* - 91/244/EEC, *Commission Directive of 6 March 1991 amending Council Directive 79/409/EEC on the conservation of wild birds.* - 92/43/EEC, *Council Directive of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora*
NATURAL RESOURCES	
4-3. The deliberate picking, collecting, cutting, or uprooting of certain plants is prohibited (Article 5 of the Convention on the Conservation of European Wildlife and Natural Habitats as adopted by 82/72/EEC, Article 1).	Verify that the picking, collecting, cutting, or uprooting of plants listed in Table 4-1 is prohibited on the installation. (1) Determine if the installation is aware of Host Nation laws prohibiting the possession or sale of the species listed in Table 4-1. (1)

(1) Natural Resources Manager (or Environmental Coordinator)

COMPLIANCE CATEGORY: NATURAL AND CULTURAL RESOURCES MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-4. Installations are required to protect certain wild fauna species (Article 6 of the Convention on the Conservation of European Wildlife and Natural Habitats as adopted by 82/72/EEC, Article 1).	Determine if the installation is aware of Host Nation legislative and administrative measures to ensure the special protection of fauna species listed in Table 4-2. (1) Verify that, in particular, the following actions are prohibited for these species on the installation: (1) - all forms of deliberate capture and keeping and deliberate killing - the deliberate damage to or destruction of breeding or resting sites - the deliberate disturbance of wild fauna particularly during the period of breeding, rearing and hibernation, in so far as disturbance would be significant in relation to the objectives of conservation and protection - the deliberate destruction or taking of eggs from the wild or keeping these eggs even if empty - the possession of and internal trade in these animals, alive or dead, including stuffed animals and any readily recognizable part or derivative thereof.
4-5. Installations must ensure that certain means of indiscriminate capture and killing and the use of all means capable of causing local disappearance of, or serious disturbance to, specific populations of fauna are not used (Article 8 of the Convention on the Conservation of European Wildlife and Natural Habitats as adopted by 82/72/EEC, Article 1).	Verify that the following means of capture and killing of mammals are not used for species listed in Table 4-3: (1) - snares - live animals used as decoys which are blind or mutilated - tape recorders - electrical devices capable of killing and stunning - artificial light sources - mirrors and other dazzling devices - devices for illuminating targets - sighting devices for night shooting comprising an electronic image magnifier or image converter - explosives - nets - traps - poison and poisoned or anaesthetic bait - gassing and smoking out - semi-automatic or automatic weapons with a magazine capable of holding more than two rounds of ammunition - aircraft - motor vehicles in motion.

(1) Natural Resources Manager (or Environmental Coordinator)

COMPLIANCE CATEGORY: NATURAL AND CULTURAL RESOURCES MANAGEMENT, EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-5. (continued)	Verify that for bird species listed in Table 4-3, the following hunting methods are not used: (1) - snares - limes - hooks - live birds used as decoys which are blind or mutilated - tape recorders - electrical devices capable of killing and stunning - artificial light sources - mirrors and other dazzling devices - devices for illuminating targets - sighting devices for night shooting comprising an electronic image magnifier or image converter - explosives - nets - traps - poison and poisoned or anaesthetic bait - semi-automatic or automatic weapons with a magazine capable of holding more than two rounds of ammunition - aircraft - motor vehicles in motion.
4-6. Installations are required to take special conservation measures for certain bird species (79/409/EEC, Article 4.1).	Verify that the installation, for species listed in Table 4-4, takes special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. (1) Verify that in habitat preservation, the following are considered: (1) - species in danger of extinction - species vulnerable to specific changes in their habitat - species considered rare because of small populations or restricted local distribution - other species requiring particular attention for reasons of the specific nature of their habitat. Verify that trends and variations in population levels are taken into account as a background for evaluations. (1) (NOTE: Member States will have classified the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where these regulations apply.)
4-7. Installations may not introduce bird species not occurring naturally in the wild state in the European territory (79/409/EEC, Article 11).	Verify that the installation does not introduce birds that do not occur naturally in the wild state in the flora and fauna of the European territory. (1)

(1) Natural Resources Manager (or Environmental Coordinator)

COMPLIANCE CATEGORY: NATURAL AND CULTURAL RESOURCES MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
HUNTING	
4-8. Hunting of certain bird species is restricted (79/409/EEC, Article 7.1).	Determine whether the Host Nation legislation prohibits hunting of those species listed in Table 4-5. (1) Verify that no species listed in Table 4-5 are hunted where that species is protected by Host Nation legislation. Verify that the installation does not allow the hunting of bird species other than those listed in Table 4-5. (1)
4-9. Hunting of certain bird species in the European commonwealth is restricted (79/409/EEC, Article 7.2).	Verify that the installation does not allow the hunting of bird species other than those listed in Table 4-6. (1)
4-10. Hunting of certain bird species protected by Host Nation legislation is prohibited (79/409/EEC, Article 7.3).	Determine whether the Host Nation legislation prohibits the hunting of species listed in Table 4-7. (1) Verify that the installation prohibits the hunting of protected species listed in Tables 4-7, in accordance with the Host Nation legislation.
4-11. Installations are required to comply with host nation regulations controlling methods of hunting (79/409/EEC, Article 7.4).	Determine if the installation is aware of host nation regulations controlling hunting practices (1) Verify that the Host Nation hunting restrictions are followed.
4-12. The large scale or non-selective capture or killing of birds is prohibited (79/409/EEC, Article 8.1).	Verify that the installation prohibits the use of all means, arrangements, or methods, used for the large-scale or non-selective capture or killing of birds, including the following: (1) - snares, limes, hooks, live birds which are blind or mutilated used as decoys, tape recorders, electrocuting devices - artificial light sources, mirrors, devices for illuminating targets, sighting devices for night shooting comprising an electronic image magnifier or image converter - explosives - nets, traps poisoned or anaesthetic bait - semi-automatic or automatic weapons with a magazine capable of holding more than two rounds or ammunition

(1) Natural Resources Manager (or Environmental Coordinator)

COMPLIANCE CATEGORY: NATURAL AND CULTURAL RESOURCES MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-13. Hunting from certain vehicles is prohibited (79/409/EEC, Article 8.2).	Verify that the installation does not allow hunting from the following: (1) - aircraft - motor vehicles - boats driven at high speed exceeding 5 kilometers per hour (km/h). (NOTE: On the open sea, Member States may, for safety reasons, authorize the use of motor boats with a maximum speed of 18 km/h.)
ADDITIONAL PROVISIONS	
4-14. The deliberate picking, collecting, cutting, or uprooting of certain plants is prohibited (92/43/EEC, Article 13).	Verify that the picking, collecting, cutting, or uprooting of plants listed in Table 4-8 is prohibited on the installation. (1)
4-15. The keeping, transport and sale or exchange and offering for sale or exchange of specimens of certain plants taken in the wild is prohibited (92/43/EEC, Article 13).	Verify that the keeping, transport and sale or exchange and offering for sale or exchange of specimens taken in the wild of the plants listed in Table 4-8 is prohibited on the installation. (1) (NOTE: This prohibition applies to all stages of the biological cycle of the plants to which it applies.)
4-16. Installations are required to protect certain wild fauna species (92/43/EEC, Article 12).	Determine whether the installation is aware of Host Nation legislative and administrative measures to ensure the special protection of fauna species listed in Table 4-8. (1) Verify that, in particular, the following actions are prohibited for these species on the installation: (1) - all forms of deliberate capture or killing of specimens of these species in the wild - the deliberate disturbance of these species, particularly during the period of breeding, rearing and hibernation and migration - the deliberate destruction or taking of eggs from the wild - deterioration or destruction of breeding sites or resting places.

(1) Natural Resources Manager (or Environmental Coordinator)

Table 4-1

Strictly Protected Flora Species

PTERIDOPHYTA (Ferns)

ASPIDIACEAE	Diplazium caudatum
PTERIDACEAE	Pteris serrulata

GYMNOSPERMAE

PINACEAE	Abies nebrodensis

ANGIOSPERMAE

ALISMATACEAE	Alisma wahlenbergii
BERBERIDACEAE	Gymnospermium altaicum
BORAGINACEAE	Anchus crispa Myosotis rehsteineri Omphalodes littoralis Onosma caespitosum Onosma troodi Solenanthus albanicus Symphytum cycladense
CAMPANULACEAE	Campanula sabatia
CARYOPHYLLACEAE	Arenaria lithops Gypsophyla papillosa Loeflingia tavaresiana Silene orphanidis Silene rothmaleri Silene velutina
CHENOPODIACEA	Kochia saxicola Salicornia veneta
CISTACEAE	Tuberia major

Table 4-1 (continued)

COMPOSITAE	Anacylus alboranensis
	Anthemis glaberrima
	Artemisia granatensis
	Artemisia laciniata
	Aster pyrenaeus
	Aster sibiricus
	Centaurea heldreichii
	Centaurea horrida
	Centaurea kalambakensis
	Centaurea lactiflora
	Centaurea linaresii
	Centaurea megarensis
	Centaurea niederi
	Centaurea peucedanifolia
	Centaurea princeps
	Crepis crocifolia
	Lamyropsis microcephala
	Leontodon siculus
	Logfia neglecta
	Senecio alboranicus
CONVOLVULACEAE	Convolvulus argyrothamnos
CRUCIFERAE	Alyssum akamasicum
	Arabis kennedyae
	Biscutella neustriaca
	Brassica hilarionis
	Brassica macrocarpus
	Braya purpurascens
	Coronopus mavasii
	Diplotaxis siettiana
	Enarthrocarpus pterocarpus
	Hutera rupestris
	Iberis arbuscula
	Ionopsidium acaule
	Ptilotrichum pyrenaicum
	Rynochosinapis johnstonnii
	Sisymbrium matritense
EUPHORBIACEAE	Euphorbia ruscinonensis
GRAMINEAE	Stipa bavarica

Table 4-1 (continued)

GROSSULARIACEAE	Ribes sardoum
HYPERICACEAE	Hypericum acigerumapennina
IRIDACEAE	Crocus cyprius Crocus hartmannianus
LABIATAE	Amarcus cordifolium
LEGUMINOSAE	Astragalus algarbiensis Astragalus aqulinus Astragalus maritimus Astragalus verrucosus Cytisus aeloicus Ononis maweana Oxytropis deflexa
LENTIBULARIACEAE	Pinguicula crystallina
LILIACEAE	Androcymbium rechingeri Chionodoxa lochiae Muscari gussonei Scilla morrisii
ORCHIDACEAE	Ophrys kostschyi
PAPAVERACEAE	Rupicapnos africana
PLUMBAGINACEAE	Armeria rouyana Limonium paradoxum Limonium recurvum
POLYGONACEAE	Rheum rhaponticum
PRIMULACEAE	Primula apennina Primula egaliksensis

Table 4-1 (continued)

RANUNCULACEAE	*Aquilegia cazorlensis*
	Aquilegia kitaibelii
	Consolida sami
	Delphinium caseyi
	Ranunculus kykkoensis
	Ranunculus weyleri
RUBIACEAE	Galium litorale
	Astragalus aqulinus
SCROPHULARACEAE	Astragalus verrucosus
	Antirrhinum charidemi
	Euphrasia marchesettii
	Linaria algarviana
	Linaria ficalhoana
SELAGINACEAE	Globuaria stygia
SOLANACEAE	Atropa baetica
	Scilla morrisii
	Daphne rodriguezii
UMBELLIFERAE	Angelica heterocarpa
	Angelica palustris
	Bupleurum kakiskalae
	Ferula cypria
	Laserpitium longiradium
VALERIANACEAE	Valeriana longiflora
VIOLACEAE	Viola hispida
	Viola jaubertiana

Table 4-2

Strictly Protected Fauna Species

MAMMALS		
INSECTIVORA	Talpidae	Desmana pyrenaica (Galemys pyrenaicus)
MICROCHIROPTERA	all species except	Pipistrellus pipistrellus
RODENTIA	Sciuridae	Citellus citellus
	Cricetidae	Cricetus cricetus
	Hystricidae	Hystrix crisata
CARNIVORA	Canidae	Canis lupus
		Alopex lagopus
	Ursidae	all species
	Mustelidae	Lutreola (Mustela) lutreola
		Lutra lutra
		Gulo gulo
	Felidae	Lynx pardina
		Panthera pardus
		Panthera tigris
	Odobenidae	Odobenus rosmarus
	Phocidae	Monachus monachus
ARTIODACTYLA	Bovidae	Capra aegagrus
		Rupicapra rupicapra ornata
		Ovibos moschatus
ODONTOCETI	Delphinidae	Delphinus delphis
		Tursiops truncatus
	Phocaenidae	Phocaena phocaena

Table 4-2 (continued)

MYSTACOCETI	Balaenopteridae	Sibbaldus (Balaenoptera) musculus
		Megaptera novengliae (longimana, nodosa)
	Balaenidae	Eubablena glacialis
		Balaena mysticetus

BIRDS

GAVIIFORMES	Gaviidae	all species
PODICIPEDIFORMES	Podicipedidea	Podiceps griseigena
		Podiceps auritus
		Podiceps nigricollis
		Podiceps ruficollis
PROCELLARIIFORMES	Mustelidae	
	Hydrobatidae	all species
	Procellariidae	Puffinus puffinus
		Procellaria diomedea
PELECANIFORMES	Phalacrocoracidae	Phalcrocorax pygmaeus
	Pelecanidae	all species
CICONIIFORMES	Ardeidae	Ardea purpurea
		Casmerodius albus
		Egretta garzetta
		Ardeola ralloides
		Bubuculus (Ardeola) ibis
		Nycticorax nyctiorax
		Botaurus stellaris
	Ciconiidae	all species
	Threskiornithidae	all species
	Phoenicopteridae	Phoenicopterus rubea

Ixobrychus minutus

Table 4-2 (continued)

ANSERIFORMES	Anatidae	Cygnus cygnus
		Cygnus bewickii
		Anser erythrous
		Branta leucopsis
		Branta rubicollis
		Tadorna tadorna
		Tadorna ferruginea
		Marmonetta (Anas) angustirostris
		Somateria spectabilis
FALCONIFORMES	all species	
GRUIFORMES	Turnicidae	Turnix sylvatica
	Gruidae	all species
	Rallidae	Porzana porzana
		Porzana pusilla
		Porzana parva
		Crex crex
		Porphyrio porphyrio
		Fulica cristata
	Otitidae	all species
CHARADIFORMES	Charadriidae	Hoplopterus spinosus
		Charadrius histicula
		Charadrius dubius
		Charadrius alexandrinus
		Charadrius leschenaulti
		Eudromias morinellus
		Arenaria interpres
	Scolopacidae	Gallinago media
		Numenius tenuirostris
		Tringa stagnatilis
		Tringa ochropus
		Tringa glareola
		Tringa hypoleucos
		Tringa cinerea
		Calidris minuta
		Calidris temminckii
		Calidris maritima
		Calidris alpina

Table 4-2 (continued)

		Calidris ferruginea
		Calidris alba
		Limicola falcinellus
	Recurvirostridae	all species
	Phalaropidae	all species
	Burbinidae	Burbinus oedicnemus
	Glareolidae	all species
	Laridae	Pagophila eburnea
		Larus audouinii
		Larus melanocephalus
		Larus genei
		Larus minutus
		Larus sabini
		Chlidonias niger
		Chlidonias leucopterus
		Chlidonias hybrida
		Gelochelidon nilotica
		Hydroprogne caspia
		Sterna hirundo
		Sterna paradisaea (macrura)
		Sterna dougallii
		Sterna albifrons
		Sterna sandvicensis
COLUMBIFORMES	Pteroclididae	all species
CUCULIFORMES	Cuculidae	
		Clamator glandarius
STRIGIFORMES	all species	
CAPRIMULGIFORMES	Caprimulgidae	all species
APODIFORMES	Apodidae	Apus apllidus
		Apus melba
		Apus caffer

Table 4-2 (continued)

CORACIIFORMES	Alcedinidae	Alcedo atthis
	Meropidae	Merops apiaster
	Coraciidae	Coracias garrulus
	Upopidae	Upopa epops
PICIFORMES	all species	
PASSERIFORMES	Alaudidae	Calandrella brachydactyla
		Calandrella rufescens
		Melanocorypha calandra
		Melanocorypha leucoptera
		Melanocorypha yeltoniensis
		Galerida theklae
		Eremophila alpestris
	Hirundinidae	all species
	Motacillidae	all species
	Laniidae	all species
	Bombycillidae	Bombycilla garrulus
	Cinclidae	Cinclus cinclus
	Troglodytidae	Troglodytes troglodytes
	Prunellidae	all species
	Muscicapidae	Turdinae
		Saxicola rubetra
		Saxicola torquata
		Oenanthe oenanthe
		Oenanthe pleschanka
		Oenanthe hispanica
		Oenanthe isabellina
		Oeanthe leucura
		Cercotrichas galactotes
		Monticola saxatilis
		Monticola solitarius
		Phoenicurus ochruros
		Phoenicurus phoenicurus
		Erithacus rubecula
		Luscinia megarhynchos

Table 4-2 (continued)

		Luscinia (Cyanosylvia) svecica
		Tarsiger cyanurus
	Sylviinae	all species
	Regulinae	all species
	Sylviinae	all species
	Muscicapinae	all species
	Timaliinae	Panurus biarmicus
Paridae	all species	
Sittidae	all species	
Certhiidae	all species	
Embrerizidae	Embreriza citrinella	
	Embreriza leucocephala	
	Embreriza cirlus	
	Embreriza cineracea	
	Embreriza caesia	
	Embreriza cia	
	Embreriza schoeniclus	
	Embreriza melanocephala	
	Embreriza aureoloa	
	Embreriza pusilla	
	Embreriza rustica	
	Plectrophenax nivalis	
	Calcarius lapponicus	
Fringillidae	Cardeulis chloris	
	Cardeulis cardeulis	
	Cardeulis spinus	
	Cardeulis flavirostris	
	Cardeulis cannabina	
	Cardeulis flammea	
	Cardeulis hornemanni	
	Serinus citrinella	
	Serinus serinus	
	Loxia curvirostra	
	Loxia pityopsittacus	
	Loxia leucoptera	
	Pinicola enucleator	
	Carpodacus erythinus	
	Rhodopechys githaginea	
	Coccothraustes coccothraustes	

Table 4-2 (continued)

	Ploceidae	Petronia petronia
		Montrifringilla nivalis
	Sturnidae	Sturnus unicolor
		Sturnus roseus
	Oriolidae	Oriolus oriolus
	Corvidae	Peroreus infaustus
		Cyanopica cyanus
		Nucifraga caryocatactis
		Pyrrhocorax pyrrhocorax
		Pyrrhocorax graculus

AMPHIBIANS

CAUDATA	Salamandridae	Salamandrina terdigitata
		Salamandra (Mertensellia) luschani
		Chioglossa lusitanica
		Triturus crisatus
	Proteidae	
	Proteus anguinus	
ANURA	Discoglossidae	
		Bombina variegata
		Bombina bombina
		Alytes obstetricans
		Alytes cisternasii
	Pelobatidae	Pelobates cultripes
		Pelobates fuscus
	Bufonidae	Bufo calamita
		Bufo viridis
	Hylidae	Hyla arborea
	Ranidae	Rana arvalis
		Rana dalmatina
		Rana latastei

Table 4-2 (continued)

REPTILES

TESTIDUNES	Testudinidae	Testudo hermanni
		Testudo graeca
		Testudo marginata
	Emydidae	Emys orbicularis
		Mauremys caspica
		Dermochelyidae
		Dermochelys coriacea
	Cheloniidae	Caretta caretta
		Lepidochelys kempii
		Chelonia mydas
		Eretmochelys imbricata
		Nucifraga caryocatactis
SAURIA	Gekkonidae	Cyrtodactylus kotschyi
	Chamaeleontidae	Chamaeleo chamaeleon
	Lacertidae	Algyroides marchi
		Lacerta lepida
		Lacerta parva
		Lacerta simonyi
		Lacerta princips
		Lacerta viridis
		Podarcis muralis
		Podarcis lilfordi
		Podarcis sicula
		Podarcis filfolensis
	Scinidae	Ablepharus kitaibelii
OPHIDIA	Colubridae	Coluber hippocrepis
		Elaphe situla
		Elaphe quatuorlineata
		Coronella austriaca
	Viperidae	Vipera ursinii
		Vipera latasti
		Vipera ammodytes
		Vipera xanthina
		Vipera lebetina
		Vipera kaznakovi

Table 4-3

Protected Fauna Species

MAMMALS

INSECTIVORA		
Erinaceidae	Erinaceus europaeus	
Soricidae	All species	
MICROCHIROPTERA	Vespertilionidae	Pipistrellus pipistrellus
DUPLICIDENTATA	Leporidae	Lepus timidus
		Lepus capensis (europaeus)
RODENTIA	Sciuridae	Sciurus vulgaris
		Marmota marmota
		Castoridae
		Castor fiber
	Gliridae	all species
	Microtidae	Microtus ratticeps
		Microtus nivalis
CETACEAE	all species not mentioned in Table 4-2	
CARNIVORA	Mustelidae	All species not included in Table 4-2
		Meles meles
		Mustela erminea
		Mustela nivalis
		Putorius (Mustela) putorius
		Martes martes
		Martes foina
	Viveridae	all species
	Felidae	Felis catus (silvestris)
		Lynx lynx
	Phocidae	Phoca vitulina
		Pusa (Phoca) hispida
		Pagophilus groenlandicus
		Erignathus barbatus
		Halichoerus grypus
		Cystophora cristata
ARTIODACTYLA	Suidae	Sus scrofa meridionalis
	Cervidae	all species
	Bovidae	Lepus capensis (europaeus)
	Capra ibex	

Table 4-3 (continued)

BIRDS

All species not included in Table 4-2, with the exception of:	Larus marinus
	Larus fuscus
	Larus argentatus
	Columba palumbus
	Passer domesticus
	Sturnus vulgaris
	Garrulus glandarius
	Pica pica
	Corvus monedula
	Corvus frugilegus
	Corvus corone (corone and cornix)

AMPHIBIANS

All species not included in Table 4-2	

REPTILES

Viveridae	all species

Table 4-4

Species Subject to Special Conservation Measures

Species	Common Name
1. Gavia stellata	Red-throated Diver
2. Gavia arctica	Black-throated Diver
3. Gavia immer	Great Northern Diver
4. Podiceps auritus	Slavonian Grebe
5. Pterodroma madeira	Freira
6. Petrodroma feae	Gon-gon
7. Bulweria bulwerii	Bulwer's Petrel
8. Calonectris diomedia	Cory's Shearwater
9. Puffinus puffinus mauretanicus	Manx Shearwater (Balearic subspecies)
10. Puffinus assimilis	Little Shearwater
11. Pelagodroma marina	Frigate Petrel
12. Hydrobates pelagicus	Storm Petrel
13. Oceanodroma leucorhoa	Leach's Storm Petrel
14. Oceanodroma castro	Madeiran Storm Petrel
15. Phalocrocorax carbo sinensis	Cormorant (continental subspecies)
16. Phalacrocorax aristotelis desmarestii	Shag (Mediterranean subspecies)
17. Phalacrocorax pygmeus	Pygmy Cormorant
18. Pelecanus onocrotalus	White Pelican
19. Pelecanus crispus	Dalmatian Pelican
20. Botaurus stellaris	Bittern
21. Ixobrychus minutus	Little Bittern
22. Nycticorax nycticorax	Night Heron
23. Aredola ralloides	Squacco Heron
24. Egretta garzetta	Little Egret
25. Egretta alba	Great White Egret
26. Ardea purpurea	Purple Heron
27. Ciconia nigra	Black Stork
28. Ciconia ciconia	White Stork
29. Plegadis falcinellus	Glossy Ibis
30. Platalea leucordia	Spoonbill
31. Phoenicopterus ruber	Greater Flamingo
32. Cygnus bewickii (Cygnus columbiana bewickii)	Bewick's Swan
33. Cygnus cygnus	Whooper Swan
34. Anser albifrons flavirostris	White-fronted Goose (Greenland subspecies)
35. Anser erythropus	Lesser White-fronted Goose
36. Branta leucopsis	Barnacle Goose
37. Branta ruficollis	Red-Breasted Boose
38. Tadoma ferruginea	Ruddy Shelduck

Species	Common Name
39. Marmaronetta angustirostris	Marbled Teal
40. Aythya nyroca	White-eyed Pochard
41. Oxyura leucocephala	White-headed Duck
42. Pernis apivorus	Honey Buzzard
43. Elanus caeruleus	Black-shouldered Kite
44. Milvus migrans	Black Kite
45. Milvus milvus	Red Kite
46. Haliaeetus albicilla	White-tailed Eagle
47. Gypaetus barbatus	Bearded Vulture
48. Neophron percnopterus	Egyptian Vulture
49. Gyps fulvus	Griffon vulture
50. Aegypius monachus	Black Vulture
51. Circaetus gallicus	Short-toed Eagle
52. Circus aeruginosus	Marsh Harrier
53. Circus cyaneus	Hen Harrier
54. Circus Macrourus	Pallid Harrier
55. Circus pygargus	Montagu's Harrier
56. Accipiter gentilis arrigonii	Goshawk (Canarian-Madeiran subspecies)
57. Accipiter nisus granti	Sparrowhawk (Canarian-Madeiran subspecies)
58. Accipiter brevipes	Levant Buzzard
59. Buteo rufinus	Long-legged Buzzard
60. Aquila pomarina	Lesser Spotted Eagle
61. Aquila clanga	Spotted Eagle
62. Aquila heriaca	Imperial Eagle
63. Aquila adalberti	Spanish Imperial Eagle
64. Aquila chrysaetos	Golden Eagle
65. Hieraaetus pennatus	Booted Eagle
66. Hieraaetus fasciatus	Bonnelli's Eagle
67. Pandion haliaetus	Osprey
68. Falco naumanni	Lesser Kestrel
69. Falco columbarius	Merlin
70. Falco eleonorae	Eleonora's Falcon
71. Falco biarmicus	Lanner Falcon
72. Falco peregrinus	Peregrine
73. Bonasa bonasia	Hazel Grouse
74. Lagopus mutus pyrenaicus	Ptarmigan (Pyrenean subspecies)
75. Lagopus mutus helveticus	Ptarmigan (Alpine subspecies)
76. Tetrao tetrix tetrix	Black Grouse (Continental subspecies)
77. Tetrao urogallus	Capercaillie
78. Alectoris graeca saxatilis	Rock Partridge (Alpine subspecies)
79. Alectoris graeca whitaken	Rock Partridge (Sicilian subspecies)
80. Alectoris barbata	Barbary Partridge
81. Perdix perdix italica	Partridge (Italian subspecies)

Table 4-4 (continued)

Species	Common Name
82. Perdix perdix hispaniensis	Partridge (Iberian subspecies)
83. Porzana porzana	Spotted Crake
84. Porzana parva	Little Crake
85. Porzana pusilla	Baillon's Crake
86. Crex crex	Corncrake
87. Porphyrio porphyrio	Purple Gallinule
88. Fulica cristata	Crested Coot
89. Turnix sytvatica	Andalusian hemipode
90. Grus grus	Crane
91. Tetrax tetrax	Little bustard
92. Chlamydotis undulata	Houbara
93. Otis tarda	Great bustard
94. Himantopus himantopus	Black-winged stilt
95. Recurvirostra avosetta	Avocet
96. Burhinus oedicnemus	Stone Curlew
97. Cursiorus cursor	Cream-colored Courser
98. Glareola pratincola	Collared Pratincole
99. Charadrius morinellus (Eudromias morinellus)	Dotterel
100. Pluvialis apricaria	Golden Plover
101. Hoplopterus spinosus	Spur-winged Plover
102. Philomachus pugnax	Ruff
103. Gallinago media	Great snipe
104. Numenius tenuirostris	Slender-billed Curlew
105. Trinag glareola	Wood Sandpiper
106. Phalaropus lobatus	Red-necked Phalarope
107. Larus melanocephalus	Mediterranean Gull
108. Larus genei	Slender-billed Gull
109. Larus audouinii	Audouin's Gull
110. Gelochelidon nilotica	Gull-billed Tern
111. Sterna caspia	Caspian Tern
112. Sterna sandvicensii	Sandwich Tern
113. Sterna dougallii	Roseate Tern
114. Sterna hirundo	Common Tern
115. Sterna paradisaea	Arctic Tern
116. Sterna albifrons	Little Tern
117. Chlidonias hybridus	Whiskered Tern
118. Chlidonias niger	Black Tern
119. Uria aalge ibericus	Guillemot (Iberian subspecies)
120. Pterocles orientalis	Black-bellied Sandgrouse
121. Pterocles alchata	Pin-tailed Sandgrouse
122. Columba palumbus azorica	Woodpigeon (Azores subspecies)
123. Columba trocaz	Long-toed Pigeon
124. Columba bollii	Bolle's Laurel Pigeon

Table 4-4 (continued)

Species	Common Name
125. Columba junoniae	Laurel Pigeon
126. Bubo bubo	Eagle Owl
127. Nyctea scandiaca	Snowy Owl
128. Glaucidium passerinum	Pygmy Owl
129. Asio flammeus	Short-eared Owl
130. Aegolius funereus	Tengmalm's Owl
131. Caprimulgus europeus	Nightjar
132. Apus caffer	White-rumped Swift
133. Alcedo atthis	Kingfisher
134. Coracias garrulus	Roller
135. Picus carnus	Grey-headed Woodpecker
136. Dryocopus martius	Black Woodpecker
137. Dendrocopos major canariensis	Great Spotted Woodpecker (Teneriffe subspecies)
138. Dendrocopos major thanneri	Great Spotted Woodpecker (Gran Canaria subspe
139. Dendrocopos syriacus	Syrian Woodpecker
140. Dendrocopos medius	Middle Spotted Woodpecker
141. Dendrocopos leucotos	White-backed Woodpecker
142. Picoides tridactulus	Three-toed Woodpecker
143. Cherosophilus duponti	Dupont's Lark
144. Melanocorypha calandra	Calandra Lark
145. Calandrella brachydactyla	Short-toed Lark
146. Galerida theklae	Thekla Lark
147. Lullula arborea	Woodlark
148. Anthus campestris	Tawny Pipit
149. Troglodytes troglodytes fridanensis	Wren (Fair Isle subspecies)
150. Luscinia svecica	Bluethroat
151. Saxicola dacotiae	Canary Islands Stonechat
152. Oenanthe leucura	Black Wheatear
153. Acrocephalus melanopogon	Moustached Warbler
154. Acrocephalus paludicola	Aquatic Warbler
155. Hippolais olivetorum	Olive-tree Warbler
156. Sylvia sarda	Marmora's Warbler
157. Sylvia undata	Dartford Warbler
158. Sylvia rueppelli	Ruppell's Warbler
159. Sylvia nisoria	Barred Warbler
160. Ficedula parva	Red-breated Flycatcher
161. Ficedula semitorquata	Semi-collared Flycatcher
162. Ficedula albicollis	Collared Flycatcher
163. Sitta krueperi	Kruper's Nuthatch
164. Sitta whiteheadi	Corsican Nuthatch
165. Lanius collurio	Red-backed Shrike
166. Lanius minor	Lesser Grey Shrike
167. Pyrrhocorax pyrrhocorax	Chough

Table 4-4 (continued)

Species	Common Name
168. Fringilla coelebs ombriosa	Chaffinch (Hierro subspecies)
169. Fringilla teydea	Canary Island Chaffinch
170. Loxia scotica	Scottish Crossbill
171. Bucanetes githagineus	Trumpeter Finch
172. Pyrrhula murina	Azores Bullfinch
173. Emberiza cineracea	Cinereous Bunting
174. Emberiza hortulana	Ottolan Bunting
175. Emberiza caesia	Cretzschmar's Bunting

Table 4-5

Species Which May be Hunted in Specified Areas

ANSERIFORMES

Species	Common Name
1. Anser fabalis	Bean goose
2. Anser anser	Greylag goose
3. Branta canadensis	Canada goose
4. Anas penelope	Wigeon
5. Anas strepera	Gradwall
6. Anas crecca	Teal
7. Anas platyrhynchus	Mallard
8. Anas acuta	Pintail
9. Anas querquedula	Garganey
10. Anas clypeata	Shoveler
11. Aythya ferina	Pochard

GALLIFORMES

13. Lagopus scoticus et hibernicus	Red grouse
14. Lagopus mutus	Ptarmigan
15. Alectoris graeca	Rock partridge
16. Alectoris rufa	Red-legged partridge
17. Perdix perdix	Partridge
18. Phasianus colchicus	Pheasant

GRUIFORMES

19. Fulica atra	Coot

CHARADRIIFORMES

20. Lymnocryptes minimus	Jack snipe
21. Gallinago gallinago	Snipe
22. Scolopax rusticola	Woodcock

COLUMBIFORMES

23. Columba livia	Rock dove
24. Columba palumbus	Wood pidgeon

COLUMBIFORMES

25. Cygnus olor	Mute swan
26. Anser brachyrhynchus	Pink-footed goose
27. Anser albifrons	White-fronted goose
28. Branta bernicla	Brent goose
29. Netta rufina	Red-crested pochard
30. Aythya marila	Scaup
31. Somateria mollissima	Eider
32. Clangula hyemalis	Long-tailed duck
33. Melanitta nigra	Common scoter
34. Melanitta fusca	Velvet scoter
35 Bucephala clangula	Golden-eye
36. Mergus serrator	Red-breasted merganser
37. Mergus merganser	Goosander
38. Bonasia bonasia (Tetrastes bonasia)	Hazel hen
39. Tetrao tetrix (Lyrurus tetrix)	Black grouse
40. Tetrao urogallus	Capercaillie
41. Alectoris barbara	Barbary partridge
42. Coturnix coturnix	Quail
43. Meleagris gallopavo	Wild turkey
44. Rallus aquaticus	Water rail
45. Gallinula chloropus	Moorhen
46. Haematopus ostralegus	Oystercatcher
47. Pluvialis apricaria	Golden plover
48. Pluvialis squatarola	Grey plover
49. Vanellus vanellus	Lapwing
50. Calidris canutus	Knot
51. Philomachus pugnax	Ruff (female) Reeve (male)
52. Limosa limosa	Black-tailed godwit
53. Limosa lapponica	Bar-tailed godwit
54. Numenius phaeopus	Whimbrel
55. Numenius arquata	Curlew
56. Tringa erythropus	Spotted redshank
57. Tringa totanus	Redshank
58. Tringa nebularia	Greenshank
59. Larus ridibundus	Black-headed gull
60. Larus canus	Common gull
61. Larus fuscus	Lesser black-headed gull
62. Larus argentatus	Herring gull
63. Larus marinus	Greater black-backed gull
64. Columba oenas	Stock dove
65. Streptopelia decaoctoa	Collard turtle dove
66. Streptopelia turtur	Turtle dove
67. Alauda arvensis	Skylark
68. Turdus merula	Blackbird
69. Turdus pilaris	Fieldfare
70. Turdus philomelos	Song-thrush
71. Turdus iliacus	Redwing
72. Turdus viscivorus	Mistle-thrush

Table 4-6

Species Which May be Hunted Only in Specified Member States

ANSERIFORMES

Species	Common Name
1. Anser fabalis	Bean goose
2. Anser anser	Greylag goose
3. Branta canadensis	Canada goose
4. Anas penelope	Wigeon
5. Anas strepera	Gradwall
6. Anas crecca	Teal
7. Anas platyrhynchus	Mallard
8. Anas acuta	Pintail
9. Anas querquedula	Garganey
10. Anas clypeata	Shoveler
11. Aythya ferina	Pochard
12. Aythya fuligula	Tufted duck

GALLIFORMES

13. Lagopus scoticus et hibernicus	Red grouse
14. Lagopus mutus	Ptarmigan
15. Alectoris graeca	Rock partridge
16. Alectoris rufa	Red-legged partridge
17. Perdix perdix	Partridge
18. Phasianus colchicus	Pheasant

GRUIFORMES

19. Fulica atra	Coot

CHARADRIIFORMES

20. Lymnocryptes minimus	Jack snipe
21. Gallinago gallinago	Snipe
22. Scolopax rusticola	Woodcock

COLUMBIFORMES

23. Columba livia	Rock dove
24. Columba palumbus	Wood pidgeon

Table 4-7

Species Which May be Hunted Except Where Prohibited by Host Nation Legislation

COLUMBIFORMES

25. Cygnus olor	Mute swan
26. Anser brachyrhynchus	Pink-footed goose
27. Anser albifrons	White-fronted goose
28. Branta bernicla	Brent goose
29. Netta rufina	Red-crested pochard
30. Aythya marila	Scaup
31. Somateria mollissima	Eider
32. Clangula hyemalis	Long-tailed duck
33. Melanitta nigra	Common scoter
34. Melanitta fusca	Velvet scoter
35. Bucephala clangula	Golden-eye
36. Mergus serrator	Red-breasted merganser
37. Mergus merganser	Goosander
38. Bonasia bonasia (Tetrastes bonasia)	Hazel hen
39. Tetrao tetrix (Lyrurus tetrix)	Black grouse
40. Tetrao urogallus	Capercaillie
41. Alectoris barbara	Barbary partridge
42. Coturnix coturnix	Quail
43. Meleagris gallopavo	Wild turkey
44. Rallus aquaticus	Water rail
45. Gallinula chloropus	Moorhen
46. Haematopus ostralegus	Oystercatcher
47. Pluvialis apricaria	Golden plover
48. Pluvialis squatarola	Grey plover
49. Vanellus vanellus	Lapwing
50. Calidris canutus	Knot
51. Philomachus pugnax	Ruff (female) Reeve (male)
52. Limosa limosa	Black-tailed godwit
53. Limosa lapponica	Bar-tailed godwit
54. Numenius phaeopus	Whimbrel
55. Numenius arquata	Curlew
56. Tringa erythropus	Spotted redshank
57. Tringa totanus	Redshank
58. Tringa nebularia	Greenshank
59. Larus ridibundus	Black-headed gull
60. Larus canus	Common gull
61. Larus fuscus	Lesser black-headed gull
62. Larus argentatus	Herring gull
63. Larus marinus	Greater black-backed gull
64. Columba oenas	Stock dove
65. Streptopelia decaoctoa	Collard turtle dove
66. Streptopelia turtur	Turtle dove

Table 4-7 (continued)

67. Alauda arvensis	Skylark
68. Turdus merula	Blackbird
69. Turdus pilaris	Fieldfare
70. Turdus philomelos	Song-thrush
71. Turdus iliacus	Redwing
72. Turdus viscivorus	Mistle-thrush

Table 4-8

ANIMALS AND PLANT SPECIES OF COMMUNITY INTEREST IN NEED OF STRICT PROTECTION

MAMMALS

INSECTIVORA	Erinaceidae	*Erinaceus algirus*
	Soricidae	Crocidura canariensis
	Talpidae	Galemys pyrenaicus
MICROCHIROPTERA	All species	
RODENTIA	Gliridae	All species except Glis glis and Eliomys quercinus
	Sciuridae	Citellus citellus
		Sciurus anomalus
	Castoridae	Castor fiber
	Microtidae	Microtus cabrerae
		Microtus oeconomus arenicola
	Zapodidae	Sicista betulina
	Hystricidae	Hystrix cristata
CARNIVORA	Canidae	Canis lupus except Spanish populations north of the Durero and Greek populations north of the 39th parallel
	Ursidae	Ursus arctos
	Mustelidae	Lutra lutra
		Mustela lutreola
	Felidae	Felis silvestris
		Lynx lynx
		Lynx pardina
	Phocidae	Monachus monachus

Table 4-8 (continued)

ARTIODACTYLA	Cervidae	Cervus elaphus corsicanus
	Bovidae	Capra aegagrus (natural populations)
		Capra pyrenaica pyrenaica
		Ovis ammon musimon
		(natural populations-
		-Corsica and Sardinia)
		Rupicapra rupicapra balcanica
		Rupicapra ornata
CETACEA	all species	
REPTILES		
TESTUDINATA	Testudinae	Testudo hermanni
		Testudo graeca
		Testudo marginata
	Cheloniidae	Caretta caretta
		Chelonia mydas
		Lepidochelys kempii
		Eretmochelys imbricata
	Dermochelyidae	Dermochelys coriacea
	Emydidae	Emys orbicularis
		Mauremys caspica
		Mauremys leprosa
SAURIA	Lacertidae	Algyroides fitzingeri
		Algyroides marchi
		Algyroides moreoticus
		Algyroides nigropunctatus
		Lacerta agilis
		Lacerta bedriagae
		Lacerta danfordi
		Lacerta dugesi
		Lacerta graeca
		Lacerta horvathi
		Lacerta monticola
		Lacerta schreiberi
		Lacerta trilineata
		Gallotia atlantica
		Gallotia galloti
		Gallotia galloti insulanagae
		Gallotia simonyi
		Gallotia stehlini
		Ophisops elegans
		Podarcis erhardii
		Podarcis filfolensis
		Podarcis hispanica atrata
		Podarcis lilfordi
		Podarcis melisellensis
		Podarcis milensis
		Podarcis muralis
		Podarcis peloponnesiaca
		Podarcis pityusensis

Table 4-8 (continued)

		Podarcis sciula
		Podarcis taurica
		Podarcis tiliguerta
		Podarcis wagleriana
	Scinidae	Ablepharus kitaibelli
		Chalcides bedriagai
		Chalcides occidentalis
		Chalcides ocellatus
		Chalcides sexlineatus
		Chalcides viridianus
		Ophiomorus punctatissimus
	Gekkonidae	Cyrtopodion kotschyi
		Phyllodactylus europaeus
		Tarentola angustimentalis
		Tarentola boettgeri
		Tarentola delalandii
		Tarentola gomerensis
	Agamidae	Stellio stellio
	Chamaeleontidae	Chamaeleo chamaeleon
	Anguidae	Ophisaurus apodus
OPHIDIA	Coubridae	Coluber caspius
		Coluber hippocrepis
		Coluber jugularis
		Coluber laurenti
		Coluber najadum
		Coluber nummifer
		Coluber viridiflavus
		Coronella austriaca
		Elaphe longissima
		Elaphe quatuorlineata
		Elaphe situla
		Natrix natrix cetti
		Natrix natrix corsa
		Natrix tessellata
		Telescopus falax
	Viperidae	Vipera ammodytes
		Vipera seoanni
		(except Spanish populations)
		Vipera schweizeri
		Vipera ursinii
		Vipera xanthia
AMPHIBIANS		
CAUDATA	Salamandridae	Chioglossa lusitanica
		Euproctus asper
		Euproctus montanus
		Euproctus platycephalus
		Salamandra atra
		Salamandra aurorae
		Salamandra lanzai
		Salamandra luschani

Table 4-8 (continued)

		Salamandrina terdigitata
		Triturus carnifex
		Triturus cristatus
		Triturus italicus
		Triturus karelinii
		Triturus marmoratus
	Proteidae	Proteus anguinus
	Plethodontidae	Speleomantes ambrosii
		Speleomantes flavus
		Speleomantes genei
		Speleomantes imperialis
		Speleomantes italicus
		Speleomantes supramontes
ANURA	Discoglossidae	Bombina bombina
		Bombina variegata
		Discoglossus galganoi
		Discoglossus jeanneae
		Discoglossus montalentii
		Discoglossus pictus
		Discoglossus sardus
		Alytes cisternasii
		Alytes muletensi
		Alytes obstetricans
	Ranidae	Rana arvalis
		Rana dalmatina
		Rana graeca
		Rana iberica
		Rana italica
		Rana latastei
		Rana lessonae
	Pelobatidae	Pelobates syriacus
		Pelobates fuscus
		Pelobates syriacus
	Bufonidae	Bufo calamita
		Bufo viridis
	Hylidae	Hyla arborea
		Hyla meridionalis
		Hyla sarda
FISH		
ACIPENSERIFORMES	Acipenseridae	Acipenser naccarii
		Acipenser sturio
ATHERINIFORMES	Cyprinodontidae	Valencia hispanica
CYPRINIFORMES	Cyprinidae	Anaecypris hispanica
PERCIFORMES	Percidae	Zingel asper
SALMONIFORMES	Coregonidae	Coregonus oxyrhynchus (anadromous populations

Table 4-8 (continued)

		in certain sectors of the North Sea)
INVERTEBRATES		
ARTHROPODS		
INSECTA	Coleoptera	Buprestis splendis
		Carabus olympiae
		Cerambyx cerdo
		Cucujus cinnaberinus
		Dytiscus latissimus
		Graphoderus bilineatus
		Osmoderma eremita
		Rosalia alpina
	Lepidoptera	Apatura metis
		Coenonympha hero
		Coenonympha oedippus
		Erebia calcaria
		Erebia christi
		Erebia sudetica
		Eriogaster catax
		Fabriciana elisa
		Hypodryas maturna
		Hyles hippophaes
		Lopinga achine
		Lycaena dispar
		Maculinea arion
		Maculinea nausithous
		Maculinea teleius
		Melanegria arge
		Papilio alexanor
		Papilio hospiton
		Parnassius apollo
		Parnassius mnemosyne
		Plebicula golgus
		Proserpinus proserpina
		Zerynthia polyxena
	Mantodea	Apteromantis aptera
	Odonata	Aeshna viridis
		Cordulegaster trinacriae
		Gomphus graslinii
		Leucorrhina albifrons
		Leucorrhina caudalis
		Leucorrhina pectoralis
		Lindenia tetraphylla
		Macromia splendens
		Ophiogomphus cecilia
		Oxygastra curtisii
		Stylurus flavipes
		Sympecma braueri
	Orthoptera	Baetica ustulata
		Saga pedo

Table 4-8 (continued)

MOLLUSCS		
GASTROPODA	Prosobranchia	Patella feruginea
	Stylommatophora	Caseolus calculus
		Caseolus commixta
		Caseolus sphaerula
		Discula leacockiana
		Discula tabellata
		Discula turricula
		Discus defloratus
		Discus guerinianus
		Elona quimperiani
		Geomalacus maculosus
		Geomitra moniziana
		Helix subplicata
		Leiostyla abbreviata
		Leiostyla cassida
		Leiostyla corneocostata
		Leiostyla gibba
		Leiostyla lamellosa
BIVALVIA	Anisomyaria	Lithophaga lithophaga
		Pinna nobilis
	Unionoida	Margaritifera margaritifera
		Unio crassus
ECHINODERMATA	Echinoidea	Centrostephanus longispinus
PLANTS		
PTERIDOPHYTA		
ASPLENIACEAE		Asplenium hemionitis L.
		Asplenium jahandiezii (Litard.) Rouy
BLECHNACEAE		Woodwardia radicans (L.) Sm.
DICKSONIACEAE		Culcita macrocarpa C. Presl
DRYOPTERIDACEAE		Dryopteris corleyi Fraser-Jenk
HYMENOPHYLLACEAE		Trichomanes speciosum Willd.
ISOETACEAE		Isoetes boryana Durieu
		Isoetes malinveriana Ces. & De Not.
MARSILEACEAE		Marsilea batardae Launert
		Marsilea quadrifolia L.
		Marsilea strigosa Willd.
OPHIOGLOSSACEAE		Botrychium simplex Hitchc.

Table 4-8 (continued)

	Ophioglossum polyphyllum A. Braun
GYMNOSPERMAE	
PINACEAE	Abies nebrodensis (Lojac.) Mattei
ANGIOSPERMAE	
AGAVACEAE	Dracaena draco
ALISMATACEAE	Caldesia parnassifolia (L.) Parl. Luronium natans (L.) Raf.
AMARYLLIDACEAE	Leucojum nicaeense Ard. Narcissus asturiensis (Jordan) Pugsley Narcissus calcicola Mendonc[cedilla]a Narcissus cyclamineus DC. Narcissus fernandesii G. Pedro Narcissus humilis (Cav.) Traub Narcissus longispathis Pugsley Narcissus nevadensis Pugsley Narcissus pseudonarcissus L. subsp. nobilis (Haw.) A. Fernandes Narcissus scaberulus Henriq. Narcissus triandrus L. Narcissus trinandrus (Salisb.) D.A. Webb subsp. capax (Salisb.) D.A. Webb Narcissus viridiflorus Schousboe
BORAGINACEAE	Anchusa crispa Viv. Lithodora nitida (H. Em) R. Fernandes Myosotis lusitanica Schuster Myosotis rehsteineri Wartm. Myosotis retusifolia R. Afonso Omphylodes kuzinskayana Willk. Omphylodes littoralis Lehm. Solenathus albanicus (Degen & al.) Degen & Baldacci Symphytum cycladense Pawl.
CAMPANULACEAE	Asyneuma giganteum (Boiss.) Bornm. Campanula sabatia De Not. Jasione crispa (Pourret Samp. subsp. serpentinica Pinto da Silva Jasione lusitanica A.DC.
CARYOPHYLLACEAE	Arenaria nevadensis Arenaria provincialis Chater & Halliday Dianthus cintranus Boiss. & Reuter subsp. cintranus Boiss. & Reuter Dianthus marizii (Samp.) Samp.

Table 4-8 (continued)

	Dianthus rupicola Biv.
	Gypsophila papillosa P. Porta
	Herniaria algarvica Chaudri
	Herniaria berlengiana (Chaudhri) Franco
	Herniaria latifolia Lapeyr. subsp. litardierei gamis
	Herniaria maritima Link
	Moehringia tommasinii Marches.
	Petrocoptis grandiflora Rothm.
	Petrocoptis montsicciana O. Bolos & Rivas Mart.
	Petrocoptis pseudoviscosa Fernandez Casas
	Silene cintrana Rothm.
	Silene hicesiae Brullo & Signorello
	Silene hifacensis Rouy ex Willk.
	Silene holzmanii Heldr. ex Boiss.
	Silene longicilia (Brot.) Orth.
	Silene mariana Pau
	Silene orphanidis Boiss.
	Silene rothmaleri Pinto da Silva
	Silene velutina Pourret ex Loisel.
CHENOPODIACEAE	
	Bassia saxicola
	Kochia saxicola
	Salicornia veneta Pignatti & Lausi
CISTACEAE	
	Cistus palhinhae Ingram
	Halimium verticillatum (Brot.) Sennen
	Helianthemum alypoides Losa & Rivas Goday
	Helianthemum caput-felis Boiss.
	Tuberaria major (Wilkk.) Pinto da Silva & Roseira

Table 4-8 (continued)

COMPOSITAE	
	Anthemis glaberrima (Rech. f.) Greuter
	Artemisia granatensis Boiss.
	Aster pyrenaeus Desf. ex DC.
	Aster sorrentinii (Tod) Lojac.
	Carduus myriacanthus Salzm. ex DC.
	Centaurea alba L.
	subsp. heldreichii (Halacsy) Dostal
	Centaurea alba L.
	subsp. princeps (Boiss. & Heldr.) Gulger
	Centaurea attica Nyman
	subsp. megarensis (Halacsy & Hayek) Dostal
	Centaurea balearica J.D. Rodriguez
	Centaurea borjae Valdes-Berm. & Rivas Goday
	Centaurea citricolor Font Quer
	Centaurea corymbosa Pourret
	Centaurea gadorensis g. Bianca
	Centaurea horrida Badaro
	Centaurea kalambakensis Freyn & Sint.
	Centaurea kartschiana Scop.
	Centaurea lactiflora Halacsy
	Centaurea micrantha Hoffmanns. & Link
	subsp. herminii (Rouy) Dostal
	Centaurea niederi Heldr.
	Centaurea peucedanifolia Boiss. & Orph.
	Centaurea pinnata Pau
	Centaurea pulvinata (G. Bianca) G. Bianca
	Centaurea rothmalerana (Arenes) Dostal
	Centaurea vicentina Mariz
	Crepis crucifolia
	Crepis granatensis
	Erigeron frigidus
	Hymenostemma pseudanthemis (Kunze) Willd.
	Jurinea cyanoides
	Jurinea fontqueri
	Lamyropsis microcephala (Moris) Dittrich & Greuter
	Leontondon microcephalus (Boiss. ex DC.) Boiss.
	Leontondon boryi Boiss.
	Leontondon siculus (Guss.) Finch & Sell.
	Leuzea longifolia Hoffmanns. & Link
	Lingularia sibrica (L.) Cass.
	Santolina impressa Hoffmanns. & Link
	Santolina semidentata Hoffmanns. & Link
	Senecio elodes Boiss. ex DC.
	Senecio nevadensis Boiss. & Reuter
CONVOLVULACEAE	
	Convolvulus artyrothamnus Greuter
	Convolvulus Ferndes Pinto da Silva & Teles
CRUCIFERAE	
	Alyssum pyrenaicum Lapeyr.
	Arabis sadina (Samp.) P. Cout.

Table 4-8 (continued)

	Biscutella neustriaca Bonnet
	Biscutella vincentina (Samp.) Rothm.
	Boleum asperum (Pers.) Desvaux
	Brassica glabrescens Poldini
	Brassica insularis Moris
	Brassica macrocarpa Guss.
	Coincya cntrana (P. Cout.) Rothm.
	Coincya rupestris Rouy
	Coronopus navasii Pau
	Diplotaxis ibicensis (Pau) Gomez-Campo
	Diplotaxis siettiana Maire
	Diplotaxis vicentina (P. Cout.) Rothm.
	Erucastrum palustre (Pirona) Vis.
	Iberis arbuscula Runemark
	Iberis procumbens Lange subsp. microcarpa Franco & Pinto da Silva
	Ionopsidium aucale (Desf.) Reichenb.
	Ionopsidium savianum (Caruel) Ball ex Arcang.
	Sysymbrium cavanillesianum Valdes & Castroviejo
	Sysymbrium supinum L.
CYPERACEAE	
	Carex panormitana Guss
	Eleocharis carniolica Koch
DIOSCOREACEAE	
	Borderea chouardii (Gaussen) Heslot
DROSERACEAE	
	Aldrovanda vesiculosa L.
EUPHORBIACEAE	
	Euphorbia margaliiana Kuhbier & Lewejohann
	Euphorbia transtagana Boiss
GENTIANACEAE	
	Centaurium rigualii Esteve Chueca
	Centaurium somedanum Lainz
	Gentiana ligustica R. de Vilm & Chopinet
	Gentianella angelica (Pugsley) E.F. Warburg
GERANIACEAE	
	Erodium astragaloides Boiss. & Reuter
	Erodium paularense Fernandez-Gonzales & Izco
	Erodium rupicola Boiss.
GRAMINEAE	
	Avenula hackelii (Henriq.) Holub
	Bromus grossus Desf. ex DC.

Table 4-8 (continued)

	Coleanthus subtilis (Tratt.) Seidl
	Fetusca brigantina
	Fetusca duriotagana Franco & A. Afonso
	Fetusca elegans Boiss.
	Fetusca henriquesii Hack.
	Fetusca sumilusitanica Franco & R. Afonso
	Gaudinia hispanica Stace & Tutin
	Holcus setiglumis Boiss. & Reuter subsp. duriensis Pinto da Silva
	Micropyropsis tuberosa Romero--Zarco & Cabezudo
	Pseudarrhenatherum pallens (Link) J. Holub
	Puccinellia pungens (Pau) Paunero
	Stipa autroitalica Martinovsky
	Stipa bavarica Martinovsky & H. Scholz
	Stipa veneta Moraldo
GROSSULARIACEAE	
	Ribes sardum Martelli
HYPERICACEAE	
	Hypericum aciferum (Greuter) N.K.B. Robson
JUNCACEAE	
	Juncus valvatus Link
LABIATAE	
	Dracocephalum austriacum L.
	Micromeria taygetea P.H. Davis
	Nepeta dirphya (Boiss.) Heldr. ex Halacsy
	Nepeta sphaciotica
	Origanum dictamnus
	Sideritis incana subsp. glauca (Cav.) Malagarriga
	Sideritis javalambrensis Pau
	Sideritis serrata Cav. ex Lag.
	Teucrium lepicephalum Pau
	Teucrium turredanum Losa & Rivas Goday
	Thymus camphoratus Hoffmanns. & Link
	Thymus carnosus Boiss.
	Thymus cephalotos L.
LEGUMINOSAE	
	Anthyllis hystrix Cardona, Contandr. & E. Sierra
	Astragalus algarbiensis Coss. ex Bunge
	Astragalus aquilanus Anzalone
	Astragalus centralpinus Braun-Blanquet
	Astragalus maritimis Moris
	Astragalus tremolsianus Pau
	Astragalus verrucosus
	Cytisus aeolicus Guss. ex Lindl.
	Genista dorycnifolia Font Quer
	Genista holopetala (Fleischm. ex Koch) Baldacci

Table 4-8 (continued)

	Melilotus segetalis (Brot.) Ser. subsp. fallax Franco
	Ononis hackelii Lange
	Trifolium saxatile All.
	Vicia bifoliolata J.D. Rodriguez
LENTIBULARIACEAE	
	Pinguicula nevadensis (Lindb.) Casper
LILIACEAE	
	Allium grosii Font Quer
	Androcymbium rechingeri Greuter
	Asphodelus bento-rainhae P. Silva
	Hyacinthoides vicentina (Hoffmanns. & Link) Rothm.
	Muscari gussonei (Parl.) Tod.
LINACEAE	
	Linum muelleri Moris
LYTHRACEAE	
	Lythrum flexosum Lag.
MALVACEAE	
	Kosteletzkya pentacarpos (L.) Ledeb.
NAJADACEAE	
	Najas flexilis (Willd.) Rostk. & W.L. Schmidt
ORCHIDACEAE	
	Cephalanthera cucullata Boiss. & Heldr.
	Cypripedium calceolus L.
	Liparis loeselii (L.) Rich.
	Ophrys lunulata Parl.
PAEONIACEAE	
	Paeonia cambessedesii (Willk.) Willk.
	Paeonia parnassica Tzanoudakis
	Paeonia clusii f.c. Stern subsp. rhodia (Stearn) Tzanoudakis
PALMAE	
	Phoenix theophrasti Greuter
PLANTAGINACEAE	
	Plantago algarbiensis Samp.
	Plantago almogravensis Franco
PLUMBAGINACEAE	
	Armeria berlengensis Daveau
	Armeria helodes Martini & Pold
	Armeria negleta Girard
	Armeria pseudarmeria (Murray) Mansfeld
	Armeria rouyana Daveau

Table 4-8 (continued)

	Armeria soleirolii (Duby) Godron
	Armeria velutina Welv. ex Boiss. & Reuter
	Limonium dodartii (Girard) O. Kuntze subsp. lusitanicum (Daveau) Franco
	Limonium insulare (Beg. & Ladi) Arrig. & Diana
	Limonium lanceolatum (Hoffmanns. & Link) Franco
	Limonium multiflorum Erben
	Limonium pseudolaetum Arrig. & Diana
	Limonium strictissimum (Salzmann) Arrig.
POLYGONACEAE	
	Polygonum praelongum Coode & Cullen
	Rumex rupestris Le Gall
PRIMULACEAE	
	Androsace mathildae Leviae
	Androsace pyrenaica Lam.
	Primula apennina Widmer
	Primula paninuri Petagna
	Soldanella villosa Darracq.
RANUNCULACEAE	
	Aconitum corsicum Gayer
	Adonis distorta Ten.
	Aquilegia bertolinii Schott
	Aquilegia kitaibelii Schott
	Aquilegia pyrenaica D.C. subsp. cazorlensis (Heywood) Galiano
	Consolida samia P.H. Davis
	Pulsatilla patens (L.) Miller
	Ranunculus weyleri Mares
RESEDACEAE	
	Reseda decursiva Forssk.
ROSACEAE	
	Potentilla delphinensis Gren. & Godron
RUBIACEAE	
	Galium litorale Guss.
	Galium viridiflorum Boiss. & Reuter
SALICACEAE	
	Salix salvifolia Brot. subsp. australis Franco
SANTALACEAE	
	Thesium ebracteatum Hayne
SAXIFRAGACEAE	
	Saxifraga berica (Beguinot)
	Saxifraga florulenta Moretti
	Saxifraga hirculus L.

Table 4-8 (continued)

	Saxifraga tombenaensis Boiss. ex Engl.
SCROPHULARIACEAE	
	Antirrhinum charidemi Lange
	Chaenorrhinum serpyllifolium (Lange) Lange
	Euphrasia genargentea (Feoli) Diana
	Euphrasia marchesettii Wettst. ex Marches.
	Linaria algarviana chav.
	Linaria coutinhoi Valdes
	Linaria ficalhoana Rouy
	Linaria flava (Poiret) Desf.
	Linaria hellenica Turrill
	Linaria ricardoi Cout.
	Linaria tursica B. Valdes & Cabezudo
	Linaria tonzigii Lona
	Odontites granatensis Boiss.
	Verbascum litigiosum Samp.
	Veronica micrantha Hoffmanns. & Link
	Veronica oetaea L.-A. Gustavson
SELAGINACEAE	
	Globularia stygia Orph ex Boiss.
SOLANACEAE	
	Atropa baetica Willk.
THYMELAEACEAE	
	Daphne petraea Leybold
	Daphne rodriguezii Texidor
ULMACEAE	
	Zelkova abelicea (Lam.) Boiss.
UMBELLIFERAE	
	Angelica heterocarpa Lloyd
	Angelica palustris (Besser) Hoffm.
	Apium bermejoi Llorens
	Apium repens (Jacq.) Lag.
	Athamanta cortiana Ferrarini
	Bupleurum capillare Boiss. & Heldr.
	Bupleurum kakiskalae Greuter
	Eryngium alpinum l.
	Eryngium viviparum Gay
	Laserpitium longiradium Boiss.
	Naufraga balerica constans & Cannon
	Oenanthe conioides Lange
	Petagnia saniculifolia Guss.
	Rouya polygama (Desf.) Coincy
	Seseli intricatum Boiss.
	Thorella verticillatinundata (Thore) Brig.
VALIERIANACEAE	
	Centranthus trinervis (Viv.) Beguinot

Table 4-8 (continued)

VIOLACEAE

Viola hispida Lam.
Viola jaubertiana Mares & Viginex

Lower Plants

BRYOPHYTA

Bruchia vogesiaca Schwaegr. (o)
Bryoerythrophyllum machadoanum (Sergio) M. Hill (o)
Busbaumia viridis (Moug. ex Lam. & DC.) Brid. ex Moug. & Nestl. (o)
Dichelyma capillaceum (With.) Myr. (o)
Dicranum viride (Sull. & Lesq.) Lindb. (o)
Distichophyllum carinatum Dix. & Nich.
Drepanocladus vernicosus (Mitt.) Warnst. (o)
Jungermannia handelii (Schiffn.) Amak. (o)
Mannia triandra (Scop.) Grolle (o)
Marsupella profunda Lindb.
Meesia loas orbicularis (Schwein.) Sull. (o)
Orthotrichum rogeri Brid. (o)
Petalophyllum ralfsii Nees & Goot. ex lehm. (o)
Riccia breidleri Jur. ex Steph. (o)
Riella helicophylla (Mont.) Hook. (o)
Scapania massolongi (K. Muell.) K. Muell. (o)
Sphagnum pylaisii Brid. (o)
Tayloria rudolphiana (Gasrov) B. & g. (o)

SPECIES FOR MACARONESIA

BPTERIDOPHYTA

HYMENOPHYLLACEAE

Hymenophyllum maderensis Gibby & Lovis

DRYOPTERIDECEAE

Polystichum drepanum (Sw.) C. Presl.

ISOETACEAE

Isoetes azorica Durieu & Paiva

MARSILIACEAE

Marsilea azorica Launert & Paiva

ANGIOSPERMAE

ASCLEPIADACEAE

Caralluma burchardii N.E. Brown
Ceropegia chrusantha Svent.

BERBERIDECEAE

Berberis maderensis Lowe

Table 4-8 (continued)

BORAGINACEAE	Echium candicans L. fil.
	Echium gentianoides Webb & Coincy
	Myosotis azorica H.C. Watson
	Myosotis maritima Hochst. in Seub.
CAMPANULACEAE	Azorina vidalii (H.C. Watson)
	Campanula morettiana Reichenb.
	Musschia aurea (L.f.) DC.
	Musschia wollastonii Lowe
	Physoplexis comosa (L.) Schur.
CAPRIFOLIACEAE	Sambucus palmensis Link
CARYOPHYLLACEAE	Moehringia fontqueri
	Spergularia azorica (Kindb.)
CELASTRACEAE	Maytenus umbellata (R. Br.) Mabb.
CHENOPODIACEAE	Beta patula Ait.
CISTACEAE	Cistus chinamadensis Banares & Romero
	Helianthemum bystropogophyllum Svent.
COMPOSITAE	Andryala crithmifolia Ait.
	Argyranthemum lidii Humphries
	Argyranthemum pinnatifidum (L.f.) Lowe subsp. succulentum (Lowe) C.J. Humphries
	Argyranthemum thalassophylum (Svent.) Hump.
	Argyranthemum winterii (Svent.) Humphries
	Atractylis arbuscula Svent & Michaelis
	Atractylis preauxiana Schultz
	Calendula maderensis DC.
	Cheirolophus duranii (Burchard) Holub
	Cheirolophus ghomerytus (Svent.) Holub
	Cheirolophus junonianus (Svent.) holub
	Cheirolophus massonianus (Lowe) Hansen
	Cirsium latifolium Lowe
	Helichrysum gossypinum Webb
	Helichrysum oligocephala (Svent. & Bzamw.)
	Helichrysum sibthorpii Rouy
	Lactuca watsoniana Trel.
	Onopordum nogalesii Svent.
	Onopordum carduelinum Bolle
	Pericallis hadrosoma Svent.
	Picris willkommii (Schultz Bip.) Nyman
	Phagnalon benettii Lowe
	Santolina elegans Boiss. ex DC.
	Senecio caespitosus Brot.
	Senecio lagascanus DC subsp. lusitanicus (P. Cout.) Pinto da Silva
	Stemmacantha cynaroides (chr. Son. in Buch) Ditt
	Sventenia bupleuroides Font Quer
	Tanacetum ptarmiciflorum Webb & Berth

Table 4-8 (continued)

	Wagenitzia lancifolia (Sieber ex Sprengel) Dostal
CONVOLVULACEAE	Convolvulus caput-medusae Lowe
	Convolvulus lopez-socasii Svent.
	Convolvulus massonii A. Dietr.
CRASSULACEAE	Aeronium gomeraense Praeger
	Aeronium saundersii Bolle
	Aichryson dumosum (lowe) Praeg.
	Monanthes wildpretii Banares & Scholz
	Sedum brissemoretii Raymond-Hamet
CRUCIFERAE	Crambe arborea Webb ex Christ
	Crambe laevigata DC. ex Christ
	Crambe sventenii R. Petters ex Bramwell & Sund.
	Murbeckiella sousae Rothm.
	Parolinia schizogynoides Svent.
	Sinapidendron rupestre (Ait.) Lowe
CYPERACEAE	Carex malato-belizii Raymond
DIPSACACEAE	Scabiosa nitens Roemer & J.A. Schultes
ERICACEAE	Erica scoparia L. subsp. azorica (Hochst.) D.A. Webb
EUPHORBIACEAE	Euphorbia handiensis
	Euphorbia lambii Svent.
	Euphorbia nevadensis Boiss. & Reuter
	Euphorbia stygiana H.C. Watson
GERANIACEAE	Geranium maderense P.F. Yeo
GESNERIACEAE	Jankaea heldreichii (Boiss.) Boiss.

Table 4-8 (continued)

GRAMINEAE	Deschampsia maderensis (Haeck. & Born.)
	Phalaris maderensis (Menezes) Menezes
LABIATAE	Sideritis cystosiphon Svent.
	Sideritis discolor (Webb ex de Noe) Bolle
	Sideritis infernalis Bolle
	Sideritis marmorea Bolle
	Teucrium abutiloides L'Her
	Teucrium betonicum L'Her
LEGUMINOSAE	Anagyris latifolia Brouss. ex Willd.
	Anthyllis lemanniana Lowe
	Dorycnium spectabile Webb & Berthel
	Lotus azoricus P.W. Ball
	Lotus callis-viridis D. Bramwell & D.H. Davis
	Lotus kunkelii (E. Chueca) D. Bramwell & al.
	Teline rosmarinifolia Webb & Berthel.
	Teline salsoloides Arco & Acebes
	Vicia dennesiana H.C. Watson
LILIACEAE	Androcymbium psammophilum Svent.
	Scilla maderensis Menezes
	Semele maderensis Costa
LORANTHACEAE	Arceuthobium azoricum Wiens & Hawksw
MYRICACEAE	Myrica rivas-martinezii Santos
OLEACEAE	Jasminum azoricum L.
	Picconia azorica (Tutin) Knobl.
ORCHIDACEAE	Goodyera macrophylla Lowe
PITTOSPORACEAE	Pittosporum coriaceum Dryand. ex Ait.
PLANTAGINACEAE	Plantago malato-belizii Lawalree
PLUMBAGINACEAE	Limonium arborescens (Brouss.) Kuntze
	Limonium dendoides Svent.
	Limonium spectabile (Svent.) Kunkel & Sunding
	Limonium sentenii Santos & Fernandez Galvan
POLYGONACEAE	Rumex azoricus Rech. fil.
RHAMNACEAE	Frangula azorica Tutin
ROSACEAE	Bencomia brachystachya Svent.
	Bencomia sphaerocarpa Svent.
	Chamameles coriacea Lindl.
	Dendriopterium puliodi Svent.
	Marcetella maderensis (Born.) Svent.
	Prunus lusitanica L.
	subsp. azorica (Mouillef.) Franco

Table 4-8 (continued)

	Sorbus maderensis (Lowe) Docle
SANTALACEAE	Kunkeliella subsucculenta Kammer
SCROPHULARIACEAE	Euphrasia azorica Wats
	Euphrasia grandiflora Hochst. ex Seub.
	Isoplexis chalcantha Svent. & O'Chanahan
	Isoplexis isabelliana
	Odontites holliana (Lowe) Benth.
	Sibthorpia peregrina L.
SELAGINACEAE	Globularia ascanii D. Bramwell & Kunkel
	Globularia sacrophylla Svent.
SOLANACEAE	Solanum lidii Sunding
UMBELLIFERAE	Ammi trifoliatum (H.C. Watson) Trelease
	Bupleurum handiense (Bolle) Kunkel
	Chaerophyllum azoricum Trelease
	Ferula latipinna Santos
	Melanoselinum decipiens (Schrader & Wendl.) Hoffm.
	Monizia edulis Lowe
	Oenanthe divaricata (R. Br.) Mabb.
	Sanicula azorica Guthnick ex Seub.
VIOLACEAE	Viola paradoxa Lowre
Lower Plants	
BBRYOPHYTA	
	Echinodium spinosum (o)
	Thamnobryum fernandesii Sergio (o)

INSTALLATION:	COMPLIANCE CATEGORY: NATURAL & CULTURAL RESOURCES MANAGEMENT EEC	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Natural Resources Manager (or Environmental Coordinator)

Section 5

ENVIRONMENTAL NOISE MANAGEMENT

Section 5

ENVIRONMENTAL NOISE MANAGEMENT

A. EC Legislation

The EC has legislated noise levels being emitted from numerous sources including motor vehicles, motorcycles, construction, demolition, and industrial equipment.

Motor Vehicles

- The regulation of permissible sound levels motor vehicles may emit is aimed at establishing and maintaining fair trade. However, sound levels are seen to impact the environment and human health and therefore vehicles must continually satisfy permissible sound levels.

Motorcycles

- Due to trade standardization, the technical requirements that motorcycles must satisfy has regulated the permissible sound levels motorcycles may emit. They are seen to aggravate the annoyance caused by noise pollution in the European Community. Therefore, the CEC has set limit values on the sound level of motorcycles as a step towards the improvement of the environment. Furthermore, legislation has mandated that permissible sound levels be periodically lowered due to technical improvements in cycle manufacture.

Construction, Demolition, and Industrial Equipment

- Action programs of the European Communities on the environment reflect the importance of the problem of noise nuisance and in particular the need for action to regulate the worst noise sources. Construction plant and equipment has been specifically targeted by the CEC.

  Owing to the effect of the noise emitted by compressors on the environment and, more particularly, on human well-being and health, the CEC has found it necessary to bring about a progressive and appreciable reduction in the permissible sound level of compressors. Additionally certain areas considered to be particularly sensitive to the nuisance caused by the airborne noise emitted by such compressors have been regulated.

In addition to compressors, tower cranes, welding generators, power generators, powered hand-held concrete-breakers and picks, hydraulic excavators, rope-operated excavators, dozers, loaders, and excavator-loaders have been similarly regulated.

B. Treaties and Conventions Implemented

- None applicable to this section.

C. Key Compliance Definitions

- *Different Types of Exhaust or Intake System* - systems characterized by fundamental differences such as the following:

  - systems bearing different trade marks or trade names
  - systems in which the characteristics of the materials of a component differ, or in which the components are of different shape or size

  (NOTE: A change in the plating procedure (galvanization, aluminum coating, etc.) is not deemed to produce a difference of type.)

  - systems in which the operating principles of at least one component differ
  - systems in which the components are combined differently (78/1015/EEC, Annex 1.3).

- *Dozers* - self propelled wheeled or crawler machines fitted in front with a blade which serves primarily to displace or spread materials (86/662/EEC, Article 2.2).

- *Excavator-loaders* - self-propelled wheeled or crawler machines, designed to be fitted with a loading bucket at the front and an excavating arm at the rear as original equipment. The loading bucket loads, raises, transports, and dumps material by combining its own movements with those of the machine. The excavating arm excavates, raises, and dumps material by movements of the boom, arm, and bucket (86/662/EEC, Article 2.4).

- *Exhaust System* - a complete set of parts necessary to reduce the noise produced by the vehicle's engine exhaust (78/1015//EEC, Annex 1.2).

- *Hydraulic or Rope-operated Excavators* - machines combining a self propelled undercarriage with an upper structure which can swivel through more than 360^{o}. The machine excavates, lifts, carries, and dumps material by moving either a boom, an arm and bucket (as is the case with a face shovel or backhoe) or a bucket controlled by the winding-gear (as is the case with a drag line or a clamshell) (86/662/EEC, Article 2.1).

  (NOTE: The exhaust and intake systems do not include the manifolds.)

- *Loaders* - self-propelled wheeled or crawler machines fitted in front with a bucket. The machine loads, raises, transports, and dumps material by combining its own movements and those of the bucket (86/662/EEC, Article 2.3).

- *Motorcycle* - any two-wheeled vehicle, with or without a sidecar, fitted with an engine, intended for use on the road and having a maximum design speed of more than 50 kilometers per hour (km/h) (78/1015/EEC, Article 1).

- *Power Generators* - any device comprising a motor unit driving a rotary generator producing continuous electrical power (84/536/EEC, Article 2).

- *Tower Crane* - a power-driven lifting appliance which:

  - when in use, consists of a vertical tower with a jib fitted to the upper part
  - is equipped with means for raising and lowering suspended loads and for horizontal movement of such loads by variation of load lifting radius and/or by slewing and/or by traveling of the complete appliance
  - is designed to be able to be removed when the work for which it was erected has been completed (84/534/EEC, Article 2).

- *Type of Vehicle* - vehicles which do not differ essentially as regards the following parts:

  - the shape or materials of the bodywork (particularly the engine compartment and its soundproofing
  - the length and width of the vehicle
  - the type of engine (two- or four-stroke of rotary piston, number and capacity of cylinders, number and type of carburetors or injection systems, arrangement of valves, rated maximum power and corresponding engine speed
  - the transmission system, particularly the number of gears and their ratios
  - the number, type and arrangement of the exhaust systems
  - the number, type and arrangement of the intake systems (78/1015/EEC, Annex 1.1).

- *Vehicle* - any motor vehicle intended for use on the road, with or without body-work, having at least four wheels and a maximum design speed exceeding 25 km/h, with the exception of vehicles of which run on rails, agricultural tractors and machinery and public works vehicles (70/157/EEC, Article 1).

- *Welding Generator* - any rotary device which produces a welding current (84/535/EEC, Article 2).

ENVIRONMENTAL NOISE MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(*)
All installations	5-1 and 5-2	(1)
If the installation has motor vehicles	5-3 through 5-7	(1)
If the installation operates noise producing equipment	5-8 through 5-15	(1)

(*) CONTACT/LOCATION CODE:

(1) BCE (Base Civil Engineering (Environmental/Community Planning))

ENVIRONMENTAL NOISE MANAGEMENT

Records to Review

- Facility Master Plan Document
- Complaint log from local community

Physical Features to Inspect

- Power generators or other noise sources
- Emergency generators
- Test tracks

Sources to Interview

- BCE (Base Civil Engineering (Environmental/Community Planning))

COMPLIANCE CATEGORY: ENVIRONMENTAL NOISE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
5-1. Determine actions or changes since the previous review of noise (GMP).	Obtain copies of the previous report and determine if noncompliance issues have been resolved. (1)
5-2. All relevant regulations, directives, and guidance documents should be maintained at the installation (GMP).	Determine if the following documents are maintained at the installation: (1) - 70/157/EEC, *Council Directive of 6 February 1970 on the approximation of the laws of the Member States relating to the permissible sound level and the exhaust system of motor vehicles .* - 77/143/EEC, *Council Directive of 29 December 1976 on the approximation of the laws of the Member States relating to roadworthiness test for motor vehicles and their trailers* - 78/1015/EEC, *Council Directive of 23 November 1978 on the approximation of the laws of the Member States on the permissible sound level and exhaust system of motorcycles.* - 84/424/EEC, *Council Directive of 3 September 1984 amending Directive 70/157/EEC on the approximation of laws of the Member States relating to the permissible sound level and exhaust system of motor vehicles.* - 84/533/EEC, *Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of compressors.* - 84/534/EEC, *Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of tower cranes .* - 84/535/EEC, *Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of welding generators .* - 84/536/EEC, *Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of power generators.* - 84/537/EEC, *Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of powered hand-held concrete-breakers and picks.* - 86/662/EEC, *Council Directive of 22 December 1986 on the limitation of noise emitted by hydraulic excavators, rope-operated excavators, dozers, loaders, and excavator-loaders.* - 87/56/EEC, *Council Directive of 18 December 1986 amending Directive 78/1015/EEC on the approximation of the laws of the Member States relating to the permissible sound level and exhaust system of motorcycles.*

(1) BCE (Base Civil Engineering (Environmental/Community Planning))

COMPLIANCE CATEGORY: ENVIRONMENTAL NOISE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
MOTOR VEHICLES	
5-3. Certain vehicles must be tested annually for noise emissions (77/143/EEC, Article 1).	Verify that the following categories of motor vehicles are tested annually for noise emissions: (1) - motor vehicles used for the carriage of passengers and with more than eight seats, excluding the driver's seat - Motor vehicles used for the carriage of goods and having a maximum permissible weight exceeding 3500 kg - Trailers and semi-trailers with a maximum permissible weight exceeding 3500 kg - taxis, ambulances
5-4. Vehicles on installations must not exceed specific sound emission limits (70/157/EEC, Article 2, Annex 1.1 as amended by 81/334/EEC, Article 1, Annex 1.5.2.2).	Verify that all vehicles are tested and meet the restrictions outlined in Table 5-1. (1)
5-5. Installations should have or develop a program for the identification of vehicles that exceed sound emission standards (GMP).	Determine whether or not the installation has a program for the identification of vehicles that exceed noise limits specified in Table 5-1. (1)
5-6. Motorcycles on the installation must not exceed specific sound emission limits (78/1015/EEC, Article 1, Annex 1.2.1.1 as amended by 87/56/EEC, Article 1, Annex 1.2.1.1.1).	Verify that motorcycles are tested and meet the restrictions outlined in Table 5-2. (1)
5-7. Installations should have or develop a program for the identification of motorcycles that exceed sound emission standards (GMP).	Determine whether the installation has a program for the identification of motorcycles that exceed noise limits specified in Table 5-2. (1)

(1) BCE (Base Civil Engineering (Environmental/Community Planning))

COMPLIANCE CATEGORY: ENVIRONMENTAL NOISE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
EQUIPMENT	
5-8. Tower cranes operated on an installation must meet certain noise emission standards (84/534/EEC, Article 3.1).	Verify that tower cranes do not exceed the permissible sound power level in dB(A)1 pW of 100 for the lifting mechanism, energy generator, and the assembly comprising the lifting mechanism and the energy generator. (1)
5-9. Tower cranes operated on an installation are required to possess an EEC type-examination certificate (84/534/EEC, Article 3.2).	Verify that all tower cranes operated on an installation are certified by an approved body with an EEC type-examination certificate specifying noise emission compliance. (1)
5-10. Welding generators operated on an installation must meet certain noise emission standards (84/535/EEC, Article 3.1).	Verify that welding generators with a welding current not exceeding 200 A do not exceed permissible sound power levels measured in dB(A)/1 pW of 101. (1) Verify that welding generators with a welding current greater than 200 A do not exceed permissible sound power levels measured in dB(A)/1 pW of 100. (1)
5-11. Welding generators operated on an installation are required to possess an EEC type-examination certificate (84/535/EEC, Article 3.2).	Verify that welding generators operated on an installation are certified by an Approved Body with an EEC type-examination certificate specifying noise emission compliance. (1)
5-12. Power generators operated on an installation must meet certain noise emission standards (84/536/EEC, Article 3.1).	Verify that power generators with an electrical power (P) less than or equal to 2 kVA do not exceed the maximum permissible sound power level in dB(A)/1 pW of 102. (1) Verify that power generators with an electrical power (P) greater than 2 kVA and less than or equal to 8 kVA do not exceed the maximum permissible sound power level in dB(A)/1 pW of 100. (1) Verify that power generators with an electrical power (P) greater than 8 kVA and less than or equal to 240 kVA do not exceed the maximum permissible sound power level in dB(A)/1 pW of 100. (1) Verify that power generators with an electrical power (P) greater than 240 kVA do not exceed the maximum permissible sound power level in dB(A)/1 pW of 100. (1)

(1) BCE (Base Civil Engineering (Environmental/Community Planning))

COMPLIANCE CATEGORY: ENVIRONMENTAL NOISE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-13. Power generators used on installations are required to have an EEC type-examination certificate (84/536/EEC, Article 3.2).	Verify that power generators have an EEC type-examination certificate issued by an Approved Body indicating noise emission compliance. (1)
5-14. Power hand-held concrete-breakers and picks are required to meet certain sound emission restrictions (84/537/EEC, Article 2.1).	Verify that appliances of mass less than 20 kg do not exceed the permissible sound power level in dB(A)/1 pW of 108. (1) Verify that appliances of mass more than 20 kg but less than 35 kg do not exceed the permissible sound power level in dB(A)/1 pW of 111. (1) Verify that appliances of mass more than 35 kg do not exceed the permissible sound power level in dB(A)/1 pW of 114. (1)
5-15. Earth-moving machines are required to meet specific noise emission standards on installations (86/662/EEC, Article 3.1(a) and Article 7).	Verify that earth-moving machines with an net installed power less than 70 kW do not exceed the maximum permissible sound-power level of 103 dB (A)/1 pW. (1) Verify that hydraulic and rope operated excavators with a net installed power of greater than 70 but less than or equal to 350 kW meet the maximum permissible sound-power level of 109 dB (A)/1 pW; all other earth-moving machines of the same power level must meet the maximum sound-power level of 111 dB (A)/1 pW. (1) Verify that all earth-moving machines with a net installed power of greater than 350 do not exceed the maximum permissible sound-power level of 115 dB (A)/1 pW. (1)

(1) BCE (Base Civil Engineering (Environmental/Community Planning))

Table 5-1

Sound Level of Moving Vehicles

Vehicle Categories	Values expressed in dB(A)
Vehicles intended for the carriage of passengers and equipped with not more than nine seats, including the driver's seat	74
Vehicles intended for the carriage of passengers and equiped with more than nine seats, including the driver's seat and having a maximum permissible mass of more than 3.5 tons and:	78
with an engine power of less than 150 kW	
with an engine power of not less than 150 kW	80
Vehicles intended for the carriage of passengers and equipped with more than nine seats, including the driver's seta; vehicles intended for the carriage of goods:	76
with a maximum permissible mass not exceeding 2 tons	
with a maximum permissible mass exceeding 2 tons but not exceeding 3.5 tons	77
Vehicles intended for the carriage of goods and having a maximum permissible mass exceeding 3.5 tons	77
with an engine power of less than 75 kW	
with an engine power of not less than 75 kW but less than 150 kW	78
with an engine power of not less than 150 kW	80

NOTE: For vehicles intended for the carriage of passengers and equipped with not more than nine seats, including the driver's seat, the limit values are increased by 1 dB (A) if they are equipped with a direct injection diesel engine.

NOTE: For vehicles intended for the carriage of passengers and equipped with more than nine seats, including the driver's seat; and vehicles intended for the carriage of goods: with a maximum permissible mass not exceeding 2 tons or with a maximum permissible mass exceeding 2 tons but not exceeding 3.5 tons, the limit values are increased by 1 dB (A) if they are equipped with a direct injection diesel engine.

Table 5-1 (continued)

NOTE: For vehicles with a maximum permissible mass of over two tons designed for off-road use, the limit values are increased by 1 dB (A) if their engine power is less than 150 kW and 2 dB (A) if their engine power is 150 kW or more.

NOTE: For vehicles intended for the carriage of passengers and equipped with not more than nine seats, including the driver's seat, which are equipped with a manually operated gear box having more than four forward gears and with an engine developing a maximum power exceeding 140 kW/t and whose permissible maximum power/maximum mass ratio exceeds 75 kW/t, the limit values are increased by 1 dB (A) if the speed at which the rear of the vehicle travels the specified distance at a speed greater than 61 km/h when measured in the appropriate manner.

Table 5-2

Motorcycle Categories

Motorcycle category by cubic capacity (in cm^3)	Sound level limits in dB (A) and dates of entry in force for national type approval of motorcycle			
	First stage limits in dB (A)	Dates of entry into force for national approval	Second stage limits in dB (A)	Dates of entry into force for national approval
1. ≤ 80	77	1 October 1988	75	1 October 1993
2. > 80 ≤ 175	79	1 October 1989	77	31 December 1994
3. > 175	82	1 October 1988	80	1 October 1993

INSTALLATION:	COMPLIANCE CATEGORY: ENVIRONMENTAL NOISE MANAGEMENT EEC	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) BCE (Base Civil Engineering (Environmental/Community Planning))

Section 6

PESTICIDE MANAGEMENT

Section 6

PESTICIDE MANAGEMENT

A. EC Legislation

The handling, storage and use of pesticides is controlled through directives under the European Economic Community (EEC). While most legislation for pesticides is aimed at market standardization, some chemical compounds are controlled for the protection of human health and the environment. Arsenic in particular has been prohibited for use in certain preparations to avoid the chance of its leaching into the Community's water system.

B. Implementation of Treaties and Conventions

- None applicable to this section.

C. Key Compliance Definitions

- *Preparations* - mixtures or solutions composed of two or more substances (76/769/EEC, Article 1).

- *Substances* - chemical elements and their compounds as they occur in the natural state or as produced by industry (76/769/EEC, Article 1).

PESTICIDE MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(*)
All the installations that apply, store, mix, prepare, or dispose of pesticides	6-1 and 6-2	(1)(2)(4)
If the installation uses arsenic compounds in pest control	6-3	(1)(2)(4)(5)
If the installation uses organostannic compounds in pest control	6-4	(1)(2)(4)(5)

(*)CONTACT/LOCATION CODE:

(1) BCE (Base Civil Engineering)
(2) BEE (Bioenvironmental Engineering)
(4) Pest Management Shop
(5) Golf Course Maintenance

PESTICIDE MANAGEMENT

Records to Review

- Records of pesticides purchased by the facility (purchase orders, inventory)
- Pesticide application records
- Description of the facility's pest control program
- Certificates of applicators of restricted-use pesticides
- Facility applicator certification and training program, including documentation of federal approval program
- Pesticide disposal manifests
- Any emergency exemption granted to the Federal agency by the EPA

Physical Features to Inspect

- Pesticide application equipment
- Pesticide storage areas, including storage containers
- Golf course maintenance areas

Sources to Interview

- BCE (Base Civil Engineering)
- BEE (Bioenvironmental Engineering)
- Pest Management Shop
- Golf Course Maintenance

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
6-1. Determine actions or changes since the previous review of pesticides (GMP).	Obtain copies of the previous report and determine if noncompliance issues have been resolved. (1)(2)(4)
6-2. All relevant regulations, directives, and guidance documents should be maintained at the installation (GMP).	Determine if the following documents are maintained at the installation: (1)(2)(4) - 79/769/EEC, *Council Directive of 27 July 1976 on the approximation of laws, regulations, and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations.* - 89/677/EEC, *Council Directive amending for the eighth time Directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations.*
6-3. Installations are prohibited from using arsenic compounds for certain purposes (79/769/EEC as amended by 89/677/EEC, Article 1.20).	Verify that the installation does not use arsenic compounds as substances and constituents of preparations intended for use to prevent the fouling by microorganisms, plants or animals of: (1)(2)(4)(5) - the hulls of boats - any totally or partly submerged appliances or equipment.
6-4. Installations are prohibited from using organostannic compounds for certain purposes (79/769/EEC as amended by 89/677/EEC, Article 1.21).	Verify that the installation does not use organostannic compounds as substances and constituents of preparations intended for use to prevent the fouling by micro-organisms, plants, or animals of: (1)(2)(4)(5) - the hulls of boats of an overall length, as defined by ISO 8666, of less than 25 meters (m) - any totally or partly submerged appliances or equipment.

(1) BCE (Base Civil Engineering) (2) BEE (Bioenvironmental Engineering) (4) Pest Management Shop (5) Golf Course Maintenance

INSTALLATION:	COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT EEC	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

(1) BCE (Base Civil Engineering) (2) BEE (Bioenvironmental Engineering) (4) Pest Management Shop (5) Golf Course Maintenance

Section 7

PETROLEUM, OIL AND LUBRICANT (POL) MANAGEMENT

SECTION 7

POL MANAGEMENT

A. EC Legislation

The primary EC legislation affecting POL management concerns waste oils. All provisions relating to the disposal of waste oils have as one of their essential objectives the protection of the environment against the harmful effects caused by the discharge, deposit, or treatment of these oils. The increase in quantities of waste oils in the Community has increased the magnitude of the problem of the disposal of waste oils without harmful effects upon the environment. The EEC has identified the need for an efficient and coherent system of treatment for waste oils, which neither creates barriers to intra-Community trade nor affects competition. This system applies to all waste oils and products, even those which are composed only in part of oil, and provides for their safe treatment under economically satisfactory conditions. This system also regulates the treatment, discharge, deposit, and collection of waste oils and provides for a system of permits for undertakings which dispose of such oils, for compulsory collection and/or disposal of such oils in certain cases and for suitable inspection procedures.

- 75/439/EEC, *Council Directive of 16 June 1975 on the disposal of waste oils.* Member States are required to enact measures to ensure that waste oils are collected and disposed of without causing any avoidable damage to man and the environment. The installation should be aware of and obtain copies of host nations regulations on the safe collection and disposal of waste oils.

- 87/101/EEC, *Council Directive of 22 December 1986 amending Directive 75/439/EEC, Council Directive of 16 June 1975 on the disposal of waste oils.* Member States are required to enact measure to ensure that oil combustion plants do not cause any significant level of air pollution. The installation should be aware of Host Nation laws on the air emissions of oil combustion plants. Member States are also required to take specific measures to control the disposal of waste oils containing PCBs and PCTs The installation should be aware of Host Nation regulations ensuring that any waste oils containing PCB/PCTs are disposed of without any avoidable damage to man and the environment. The regeneration of waste oils at the installation which contain PCBs and PCTs should be permitted only if the regeneration process makes it possible either to destroy the PCBs and PCTs or to reduce them so that the regenerated oils do not contain PCB/PCT beyond a maximum limit, which in no case may exceed 50 ppm.

B. Implementation of Treaties and Conventions

- None applicable to this section.

C. Key Compliance Definitions

- *Collection* - all operations whereby waste oils can be transferred from the holders to undertakings which dispose of such oils (87/101/EEC, Article 1.1).

- *Combustion* - the use of waste oils as fuel with the heat produced being adequately recovered (87/101/EEC, Article 1.1).

- *Disposal* - the processing or destruction of waste oils as well as their storage and tipping above or under ground (87/101/EEC, Article 1.1).

- *Inland Surface and Ground Waters* - this term is not defined in the Directives, but see related terms in Water Quality Management Chapter.

- *Processing* - operations designed to permit the re-use of waste oils, that is to say, regeneration and combustion (87/101/EEC, Article 1.1).

- *Regeneration* - any process whereby base oils can be produced by refining waste oils, in particular by removing the contaminants, oxidation products and additives contained in such oils (87/101/EEC, Article 1.1).

- *Waste Oils* - any mineral-based lubrication or industrial oils which have become unfit for the use for which they were originally intended, and in particular used combustion engine oils and gearbox oils, and also mineral lubricating oils, oils for turbines and hydraulic oils (87/101/EEC, Article 1.1).

POL MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(*)
All installations	7-1 and 7-2	(1)(2)
All installations that produce, store, collect, or disposal of waste oil	7-3 through 7-10	(1)(3)(4)(5)(7)(8)(9)

(*)CONTACT/LOCATION CODE:

(1) BEC (Base Environmental Coordinator)
(2) BCE (Base Civil Engineer)
(3) BFMO (Base Fuels Management Office)
(4) LFM (Liquid Fuels Maintenance)
(5) BEE (Base Bioenvironmental Engineer)
(7) Heat Shop
(8) Power Production
(9) AAFES Service Station Manager

POL MANAGEMENT

Records to Review

- Records of all spills, leaks, and associated site assessment/cleanup activities (for 3 years)
- Spill Prevention and Response Plan
- Records of spill response training

Physical Features to Inspect

- Refueling facilities, including:
  - above-ground storage tanks and dikes
  - venting
  - fill pipe
  - gauges
- Washrack areas
- Vehicle maintenance areas
- Oil separators
- Oil and hazardous substance site

Sources to Interview

- BEC (Base Environmental Coordinator)
- BCE (Base Civil Engineer)
- BFMO (Base Fuels Management Office)
- LFM (Liquid Fuels Maintenance)
- BEE (Base Bioenvironmental Engineer)
- Heat Shop
- Power Production
- AAFES Service Station Manager

COMPLIANCE CATEGORY: POL MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
7-1. Determine actions or changes since the previous review (GMP).	Obtain copies of the previous report and determine if noncompliance issues have been resolved. (1)(2)
7-2. All relevant regulations, directives, and guidance documents should be maintained at the installation (GMP).	Determine if the following documents are maintained at the installation: (1)(2) - 75/439/EEC, *Council Directive of 16 June 1975 on the disposal of waste oils.* - 87/101/EEC, *Council Directive of 22 December 1986 amending Directive 75/439/EEC, Council Directive of 16 June 1975 on the disposal of waste oils.*
WASTE OILS	
7-3. Installations are required to ensure, as far as technologically and economically possible, that the disposal of waste oils is carried out by recycling (75/439/EEC, Article 3 as amended by 87/101/EEC, Article 3).	Verify that installations give priority to the processing of waste oils by regeneration. (1)(3)(4)(8)(9) Verify that waste oils, which are not regenerated, are burned under environmentally acceptable conditions, as far as economically, technically, and organizationally feasible. (1)(3)(4)(8)(9) Verify that waste oils, which are not regenerated or burned, are safely destroyed, stored, or tipped according to Host Nation law. (1)(3)(4)(8)(9)
7-4. Installations are required to prevent undue hazard to the environment by the discharge, deposit, or processing of waste oils (75/439/EEC, Article 4 as amended by 87/101/EEC, Article 4).	Verify that the discharge of waste oils into inland surface waters, ground water, coastal waters and drainage systems is prevented. (1)(3)(4)(8)(9) Verify that the deposit and/or discharge of waste oils harmful to the soil and any uncontrolled discharge of residues resulting from the processing of waste oils is prevented. (1)(3)(4)(8)(9) Verify that the processing of waste oils causing air pollution which exceeds the level prescribed is prohibited. (1)(3)(4)(8)(9)
7-5. Installations that undertake waste oil disposal must obtain a permit before initiating any disposal program (75/439/EEC, Article 6 as amended by 87/101/EEC, Article 6.)	Verify that the installation has obtained an operating permit from the host nation's designated authority. (1)(3)

(1) BEC (Base Environmental Coordinator) (2) BCE (Base Civil Engineer) (3) BFMO (Base Fuels Management Office) (4) LFM (Liquid Fuels Maintenance) (5) BEE (Base Bioenvironmental Engineer) (7) Heat Shop (8) Power Production (9) AAFES Service Station Manager

COMPLIANCE CATEGORY: POL MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
7-6. Installations unable to properly process waste oils must utilize a Host Nation authorized facility for disposal and/or processing (75/439/EEC, Article 5 and 7 as amended by 87/101/EEC, Article 5 and 6).	Verify that installations without a waste oil processing program contract for disposal with a Host Nation-approved facility. (1)(5)
7-7. Installations that process waste oils by regeneration are required to follow certain Host Nation and EEC regulations (87/101/EEC, Article 7).	Verify that the installation's regeneration plant does not cause avoidable damage to the environment by ensuring that the risks associated with the quantity of residues of regeneration and with the toxic and dangerous character of such residues are reduced to a minimum and that the residues are disposed of according to sound environmental practice. (1)(7) Verify that the base oils derived from regeneration do not constitute a toxic and dangerous waste and do not contain polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) in concentrations beyond the limits set out in this section. (1)(7)
7-8. Installations may not use waste oils as fuel when they constitute a toxic and dangerous waste (87/101/EEC, Article 8.2).	Verify that the waste oils used as fuels do not constitute a toxic and dangerous waste nor contain PCB/PCT in concentrations beyond 50 ppm. (1)(7)(8)
7-9. Installations that store or collect waste oils may not mix them with certain other dangerous substances (87/101/EEC, Article 1.4 (Article 10.1)).	Verify that installations that store or collect waste oils do not mix them with PCBs and PCTs or with toxic or dangerous waste. (1)(3)(4)(9)
7-10. Installations that produce, collect, and/or dispose of more than a given quantity of waste oils per year, to be specified by the host nation, but not more than 500 liters, must follow certain record keeping and reporting requirements (75/439/EEC, Article 10 as amended by 87/101/EEC, Article 1.4).	Verify that the installation falls within the host nation's specified quantity or within the 500 liter maximum. (1)(3)(4)(7)(8)(9) Verify that installations: (1)(3)(4)(7)(8)(9) - keep a record of the quantity, quality, origin, and location of such oils and of their dispatch and receipt, including dates of the latter - convey such information to the host nation competent authorities upon request.

(1) BEC (Base Environmental Coordinator) (2) BCE (Base Civil Engineer) (3) BFMO (Base Fuels Management Office) (4) LFM (Liquid Fuels Maintenance) (5) BEE (Base Bioenvironmental Engineer) (7) Heat Shop (8) Power Production (9) AAFES Service Station Manager

INSTALLATION:	COMPLIANCE CATEGORY: POL MANAGEMENT EFC	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

(1) BEC (Base Environmental Coordinator) (2) BCE (Base Civil Engineer) (3) BFMO (Base Fuels Management Office) (4) LFM (Liquid Fuels Maintenance) (5) BEE (Base Bioenvironmental Engineer) (7) Heat Shop (8) Power Production (9) AAFES Service Station Manager

Section 8

SOLID WASTE MANAGEMENT

Section 8

SOLID WASTE MANAGEMENT

A. EC Legislation

The essential objective of all provisions relating to waste disposal in the European Economic Community is the protection of human health and the environment against harmful effects caused by the collection, transport, treatment, storage and tipping of waste. In order to protect the environment, provisions are made for a system of permits for undertakings which treat, store, or tip wastes on behalf of third parties, for a supervisory system for undertakings which dispose of their own waste and for those which collect the waste of others, and for a plan embracing the essential factors to be taken into consideration in respect of the various waste disposal operations.

- 75/442/EEC, *Council Directive of 15 July 1975 on waste.* Member States are required to take appropriate steps to encourage the prevention, recycling, and processing of waste. The installation should be aware of Host Nation regulations addressing the prevention, recycling, and processing of waste. Member States are also required to take measures to ensure that waste is disposed of according to specific standards. The installation should be aware of Host Nation regulations ensuring that waste is disposed of without endangering human health and without harming the environment, and in particular: without risk to water, air, soil, plants, and animals; without causing a nuisance through noise or odors; without adversely affecting the countryside or places of special interest.

- 91/157/EEC, *Council Directive of 18 March 1991 on batteries and accumulators containing certain dangerous substances.* Member States are required to develop a program to handle waste batteries. The installation should aware of, and meeting, Host Nation requirements concerning: reduction of the heavy metal content of batteries and accumulators; and the reduction in household waste of spent batteries and accumulators and their separate disposal as follows: batteries and accumulators put on the market after 9/18/92 containing more than 25 mg mercury per cell (except alkaline manganese batteries), more than 0.025 percent cadmium by weight, and more than 0.4 percent lead by weight, and alkaline manganese batteries containing more than 0.025 percent mercury by weight placed on the market after 18 September 1992.

B. Implementation of Treaties and Conventions

- None applicable to this section.

C. Key Compliance Definitions

- *Collection* - the gathering, sorting, and/or mixing of waste for the purpose of transport (91/156/EEC, Article 1(g)).

- *Disposal* - any of the operations listed in Table 2 (75/442/EEC, Article 1(b) as amended by 91/156/EEC, Article 1(e)).

- *Holder* - the producer of the waste or the natural or legal person who is in possession of it (91/156/EEC, Article 1(c)).

- *Management* - the collection, transport, recovery, and disposal of waste, including the supervision of such operations and after-care of disposal sites (91/156/EEC, Article 1(d).

- *Producer* - anyone whose activities produce waste ("original producer") and/or anyone who carries out pre-processing, mixing, or other operations resulting in a change in the nature or composition of this waste (91/156/EEC, Article 1(b)).

- *Recovery* - any of the operations provided for in Table 3 (91/156/EEC, Article 1(f)).

- *Waste* - any substance or object in the categories set out in Table 8-1 which the holder discards or intends or is required to discard (75/442/EEC, Article 1(a) as amended by 91/156/EEC, Article 1(a)).

SOLID WASTE MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(*)
All installations	8-1 through 8-3	(1)(2)
If the installation disp[illegible] of solid waste	8-4 through 8-6	(1)(2)

(*)CONTACT/LOCATION CODE:

(1) BEC (Base Environmental Coordinator)
(2) BCE (Base Civil Engineer)

SOLID WASTE MANAGEMENT

Records to Review

- Record of current nonhazardous solid waste management practices
- Documentation of locations (map) and descriptions of all nonhazardous waste treatment, storage, and disposal facilities (TSDFs)
- Records of operational history of all active and inactive TSDFs
- Environmental monitoring procedures or plans
- Records of resource recovery practices, including the sale of materials for the purpose of recycling
- Solid waste removal contracts and inspection records

Physical Features to Inspect

- Resource recovery facilities
- Incineration and land disposal facilities (active and inactive)
- Areas where hazardous and nonhazardous wastes are disposed of
- Construction debris areas
- Waste receptacles
- Solid waste vehicle storage and washing areas

Sources to Interview

- BEC (Base Environmental Coordinator)
- BCE (Base Civil Engineer)

COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
8-1. Determine actions or changes since the previous review of solid waste (GMP).	Obtain copies of the previous report and determine if noncompliance issues have been resolved. (1)(2)
8-2. All relevant regulations, directives, and guidance documents should be maintained at the installation (GMP).	Determine if the following documents are maintained at the installation: (1)(2) - 75/442/EEC, *Council Directive of 15 July 1975 on waste.* - 91/156/EEC, *Council Directive of 18 March 1991 amending Directive 75/442/EEC on waste.* - 91/157/EEC, *Council Directive of 18 March 1991 on batteries and accumulators containing certain dangerous substances.*
8-3. Competent Authorities established by the Member State are required to create certain solid waste plans (75/442/EEC, Article 6 as amended by 91/156/EEC, Article 7.1).	Determine if the installation is knowledgeable of Host Nation solid waste plans and in particular: (1)(2) - the type and quantity of waste to be disposed of - general technical requirements - suitable disposal sites - any special arrangements for particular wastes.
WASTE DISPOSAL	
8-4. Installations are required to have waste disposed of according to Member State and EC law (75/442/EEC, Article 7 as amended by 91/156/EEC, Article 8).	Verify that the installation has waste handled by one of the following: (1)(2) - a private or public waste collector or by a disposal undertaking permitted to perform disposal operations. - disposes of waste itself according to Host Nation law and without compromising Directive 91/156/EEC as stated in this section.
8-5. Solid waste disposal facilities must be have a permit issued by a competent authority (75/442/EEC, Article 8 as amended by 91/156/EEC, Article 9.1).	Verify that private contractors treating and disposing waste generated by the installation have a permit issued by a competent authority of the Host Nation. (1)(2) Verify that installations that dispose of their own waste are permitted. (1)(2) (NOTE: Installations that treat their own waste are subject to periodic inspection by competent authority.)

(1) BEC (Base Environmental Coordinator) (2) BCE (Base Civil Engineer)

COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-6. Installations that dispose of their own waste are required to follow certain record-keeping procedures (91/156/EEC, Article 14).	Verify that the installation keeps a record of the quantity, nature, origin, and, where relevant, the destination, frequency of collection, mode of transport, and treatment method of waste. (1)(2) (NOTE: Installations are required to provide the above information, on request, to the Host Nation competent authorities.) (NOTE: Host Nations may require installations that produce waste but have that waste disposed of by contract, to maintain the above-mentioned records.)

(1) BEC (Base Environmental Coordinator) (2) BCE (Base Civil Engineer)

INSTALLATION:	COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT EEC	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) BEC (Base Environmental Coordinator) (2) BCE (Base Civil Engineer)

Section 9

SPECIAL PROGRAMS MANAGEMENT

Section 9

SPECIAL PROGRAMS MANAGEMENT

A. EC Legislation

- **PCBs**

Within the EEC, PCBs present hazards which are widely recognized as being harmful to human health and the environment and therefore must be controlled at each stage of their use. The program of action of the European Communities on the environment recognizes the need for Community-level action with respect to PCB waste treatment, which, because of its toxicity and non-degradability, requires solutions extending beyond the national framework. Given this attention, the Council of the European Communities has mandated Member States to take the necessary measures to make mandatory the disposal of waste PCB or of PCB in objects or equipment no longer capable of being used.

In addition to providing general guidelines for Member States on PCB/PCT handling and treatment, the EC currently has proposed a Council Directive that provides strict guidelines. This proposal, if passed, will require detailed record keeping of all PCB containing materials and give specific requirements in the transport, handling, storage, disposal, and recycling of PCB-containing materials.

- 76/403/EEC, *Council Directive of 6 April 1976 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls.* Member States are required to enact measures controlling the discharge of PCB and disposal of PCB contained in objects or equipment. Installations should be aware of any Host Nation laws prohibiting the uncontrolled discharge, dumping, and tipping of PCB and of objects and equipment containing such substance. Member States are required to make compulsory the disposal of PCB waste. Installations should be aware of any Host Nation laws that make compulsory the disposal of waste PCB and PCB contained in objects and equipment no longer capable of being used. Member States are required to enact the necessary measures to ensure that PCBs are disposed of without endangering human health or the environment. Installations should be aware of any Host Nation laws ensuring that PCBs are disposed of without endangering human health and without harming the environment. Member States are required to enact measures promoting the regeneration of PCB waste. Installations should be aware of Host Nation laws ensuring, as far as possible, that the regeneration of waste PCB and PCB contained in objects and equipment no longer capable of being used is promoted.

• **ASBESTOS**

Asbestos has been listed among the first-category pollutants to be investigated on the grounds of their toxicity and their potentially serious effects on human health and the environment. The European Council has emphasized combating air pollution from industrial plants and the protection of workers from the risks related to exposure to asbestos at work.

• 87/217/EEC, *Council Directive of 19 March 1987 on the prevention and reduction of environmental pollution by asbestos.* Member States are required to enact measures to ensure that asbestos pollution and waste is reduced and prevented at the source. Installations should be aware of Host Nation regulations that ensure that asbestos emissions into the air, asbestos discharges into the aquatic environment, and solid asbestos waste are, as far as reasonably practicable, reduced at source and prevented. In the case of the use of asbestos, these measures should entail using the best available technology not entailing excessive cost, including where appropriate recycling or treatment. Member States are required to enact measures controlling the working of products containing asbestos. Installations should be aware of Host Nation regulations ensuring that activities involving the working of products containing asbestos do not cause significant environmental pollution by asbestos fibers or dust and that the demolition of buildings, structures, and installations containing asbestos and the removal therefrom of asbestos or materials containing asbestos involving the release of asbestos fibers or dust do not cause significant asbestos environmental pollution.

B. Implementation of Treaties and Conventions

• None applicable to this topic implemented by the EC.

C. Key Compliance Definitions

• *Asbestos* - means the following fibrous silicates:

- crocidolite (blue asbestos)
- actinolite
- anthophyllite
- chrysotile (white asbestos)
- amosite (brown asbestos)
- tremolite

(87/217/EEC, Article 2.1)

- *Disposal* - the collection and/or destruction of PCB and the transformation operations necessary for regenerating PCB (76/403/EEC, Article 1).

- *PCB* - polychlorinated biphenyls, polychlorinated terphenyls, and mixtures that contain one or more of these substances (76,403/EEC, Article 1).

SPECIAL PROGRAMS MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(*)
All installations	9-1 and 9-2	(1)(2)
PCBs		
Installations with PCBs	9-3 through 9-6	(1)(2)(3)
Asbestos		
Installations with asbestos	9-7 through 9-10	(1)(9)(10)

(*)CONTACT/LOCATION CODE:

(1) BCE (Environmental Planning)
(2) BEE (Bioenvironmental Engineering)
(3) BCE (Exterior Electric Shop)
(9) Asbestos Program Officer
(10) Asbestos Operating Officer

SPECIAL PROGRAMS MANAGEMENT

Records to Review

- Inspection, storage, maintenance and disposal records for PCBs/PCB items
- PCB equipment inventory and sampling results
- Asbestos management plan
- Documentation of asbestos sampling and analytical results
- Documentation of preventative measure or action
- Results of air sampling at the conclusion of response action
- Records of asbestos training program
- List of buildings insulated with asbestos or housing asbestos-containing materials
- Record of demolition or renovation projects completed in the past 5 years that involve friable asbestos

Physical Features to Inspect

- PCB storage areas
- Equipment, fluids, and other items used or stored at the facility containing PCBs
- Pipe, spray-on, duct, and troweled cementitious insulation and boiler lagging
- Ceiling and floor pipes

Sources to Interview

- BCE (Environmental Planning)
- BEE (Bioenvironmental Engineering)
- BCE (Exterior Electric Shop)
- Asbestos Program Officer
- Asbestos Operating Officer

COMPLIANCE CATEGORY: SPECIAL PROGRAMS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
9-1. Determine actions or changes since previous review of Special Programs (GMP).	Obtain copy of previous review report and determine if non-compliance issues have been resolved. (1)(2) Determine whether facility changes relative to PCB equipment have occurred since previous review which would affect the scope of the review. (1)(2)
9-2. The installation should maintain copies of all relevant European Economic Community and Host Nation laws (GMP).	Determine if copies of the following laws are maintained at the installation: (1)(2) - 76/403/EEC, *Council Directive of 6 April 1976 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls.* - 76/769/EEC, *Council Directive of 27 July 1976 on the approximation of the laws, regulations, and administrative provisions of the Member States relating to the restrictions on the marketing and use of certain dangerous substances and preparations.* - 83/478/EEC, *Council Directive of 19 September 1983 amending for the fifth time (asbestos) Directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to the restrictions on the marketing and use of certain dangerous substances and preparations.* - 85/467/EEC, *Council Directive of 1 October 1985 amending for the sixth time (PCBs/PCTs) Directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to the restrictions on the marketing and use of certain dangerous substances and preparations.* - 85/610/EEC, *Council Directive of 20 December 1985 amending for the seventh time (asbestos) Directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to the restrictions on the marketing and use of certain dangerous substances and preparations.* - 87/217/EEC, *Council Directive of 19 March 1987 on the prevention and reduction of environmental pollution by asbestos.* - 90/656/EEC, *Council Directive of 4 December 1990 on the transitional measures applicable in Germany with regard to certain community provisions relating to the protection of the environment.* - 91/339/EEC, *Council Directive of 18 June 1991 amending for the 11th time Directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations.* - 91/659/EEC, *Commission Directive of 3 December 1991 adapting to technical progress Annex I to Council Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (asbestos).*

(1) BCE (Environmental Planning) (2) BEE (Bioenvironmental Engineering) (3) BCE (Exterior Electric Shop) (9) Asbestos Program Officer (10) Asbestos Operating Officer

COMPLIANCE CATEGORY: SPECIAL PROGRAMS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
PCBs	
9-3. Installations not authorized by competent authority to dispose of PCB must do so by means of permitted facilities (76/403/EEC, Article 7).	Verify that installations disposing of PCBs are authorized by competent authorities of the Host Nation. (1)(2)(3) Verify that installations that do not dispose of PCBs on their own account, do so by means of facilities designated by competent authorities of the Host Nation. (1)(2)(3)
9-4. Certain PCBs and PCTs may not be used for except for specific electrical and condenser purposes (76/769/EEC, Article 1, Annex 1.1).	Verify that the installation does not use polychlorinated biphenyls (PCBs) (except mono- and dichlorinated biphenyls), polychlorinated terphenyls (PCTs), preparations with a PCB or PCT content higher than 0.1% by weight except for the following categories: (1)(2)(3) - closed system electrical equipment: transformers, resistors, and inductors - large condensers greater than or equal to 1 kg total weight) - small condensers (provided that the PCB has a maximum chlorine content of 43% and does not contain more than 3.5% of penta- and higher chlorinated biphenyls.).
9-5. Certain PCBs and PCTs may not be used for specific heat-transmitting and hydraulic purposes (76/769/EEC, Article 1, Annex 1.1).	Verify that the installation does not use polychlorinated biphenyls (PCBs) (except mono- and dichlorinated biphenyls),polychlorinated terphenyls (PCT) or preparations with a PCB or PCT content higher than 0.1% by weight except for the following categories: (1)(2)(3) - heat transmitting fluids in closed-circuit heat-transfer installations (except in installations for processing foodstuffs, feedingstuffs, pharmaceutical and veterinary products) - hydraulic fluids utilized in machinery servicing cells for the electrolytic production of aluminum and primary and intermediate products which are not prohibited by the EEC.
9-6. The use of certain substitutes for PCBs is prohibited (91/339/EEC).	Verify that the installation does not use: (1)(2)(3) - Monomethyl tetrachlorodiphenyl methane (trade name Ugilec 141) - Monomethyl-dichloro-diphenyl methane (trade name Ugilec 121 or Ugilec 21) - Monomethyl-dibromo-diphenyl methane (trade name DBBT). (NOTE: The prohibition of monomethyl-tetrachlorodiphenyl methane takes effect on 18 June 1994. Plant or machinery already in service on 18 June 1994 which use monomethyl-tetrachlorodiphenyl methane may continue to be used until such plant or machinery is disposed of. However, Member States may individually prohibit its continued use in plant and machinery that are in use on that date.)

(1) BCE (Environmental Planning) (2) BEE (Bioenvironmental Engineering) (3) BCE (Exterior Electric Shop) (9) Asbestos Program Officer (10) Asbestos Operating Officer

COMPLIANCE CATEGORY: SPECIAL PROGRAMS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ASBESTOS	
9-7. Installations are required to ensure asbestos discharged into air ducts does not exceed certain limits (87/217/EEC, Article 4.1).	Verify that the concentration of asbestos emitted through the discharge ducts into the air during use of asbestos does not exceed a limit value of 0.1 mg/m^3 (milligrams of asbestos per m^3. (1)(9)(10) (NOTE: Host Nations may exempt from the above obligation installations emitting less than 5000 m^3/hour total gaseous discharges, where the discharge of asbestos into the air is not more than 0.5 grams per hour at any time under normal operating conditions.)
9-8. Installations are required to ensure against asbestos pollution during transport and deposition (87/217/EEC, Article 8).	Determine if the installation is aware of Host Nation regulations ensuring that: (9)(10) - in the course of the transport and disposal of waste containing asbestos fibers or dust, no such fibers or dust are released into the air and no liquids which may contain asbestos fibers are spilled - where waste containing asbestos fibers or dust is landfilled at sites licensed for the purpose, such waste is so treated packaged or covered, with account being taken of local conditions, that the release of asbestos particles into the environment is prevented. Verify that the installation is complying the requirements of Host Nation laws and regulations.

(1) BCE (Environmental Planning) (2) BEE (Bioenvironmental Engineering) (3) BCE (Exterior Electric Shop) (9) Asbestos Program Officer (10) Asbestos Operating Officer

COMPLIANCE CATEGORY: SPECIAL PROGRAMS MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-9. The marketing and use of specific products containing asbestos fibers is prohibited (91/659/EEC, Article 1).	Verify that the following products containing asbestos fibers are not used or marketed on the installation: (9)(10) - toys - materials or preparations intended to be applied by spraying - finished products which are retailed to the public in powder form - items for smoking, such as tobacco pipes and cigarette and cigar holders - catalytic filters and insulation devices for incorporation into catalytic heaters using liquefied gas - paints and varnishes - filters for liquids - road surfacing material where the fiber content is greater than 2% - mortars, protective coatings, fillers, sealants, jointing compounds, glues, decorative powders and finishes - low density insulating or soundproofing materials (density less than 1 g/cm^3) - air filters and filters in transport distribution and utilization of natural gas and town gas - underlays for plastic floor and wall coverings - textiles finished in the form intended to be supplied to the end user unless treated to avoid fiber release - roofing felt. (NOTE: For the purposes of this directive, asbestos fibers include: - Amosite - Anthophyllite asbestos - Actinolite asbestos - Chrysotile - Crocidolite - Tremolite asbestos.) (NOTE: The following products are not immediately affected: - filters for medicinal use until 31 December 1994 - diaphragms for electolysis process until 31 December 1998.) (NOTE: Member States may permit the use of the following products containing Crocidolite fibers: - asbestos-cement pipes - acid and temperature-resistant seals, gaskets, gland packings and flexible compensators - torque converters.)
9-10. Products containing asbestos fibers, whose use and marketing is permitted, may be used or marketed only if they bear an appropriate label (83/478/EEC, Article 5.2).	Verify that any products containing asbestos fibers, which are used or marketed on the installation, bear the label applied by the manufacturer in accordance with EEC and Host Nation regulations. (9)(10)

(1) BCE (Environmental Planning) (2) BEE (Bioenvironmental Engineering) (3) BCE (Exterior Electric Shop) (9) Asbestos Program Officer (10) Asbestos Operating Officer

INSTALLATION:	COMPLIANCE CATEGORY: SPECIAL PROGRAMS MANAGEMENT EEC	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) BCE (Environmental Planning) (2) BEE (Bioenvironmental Engineering) (3) BCE (Exterior Electric Shop) (9) Asbestos Program Officer (10) Asbestos Operating Officer

Section 10

WATER QUALITY MANAGEMENT

Section 10

WATER QUALITY MANAGEMENT

A. EC Legislation

The EC views water from two perspectives which are similar to how the USEPA regards water issues. There are water quality standards for certain uses and effluent discharge standards for dangerous substances.

Both the USEPA and the EC legislate the use of water for human consumption. But the EC additionally legislates the quality of water used for swimming (known as bathing water in the EC), and the quality of water inhabited by fish.

Discharges of dangerous substances is a growing area of EC legislation. While currently the legislation tends to be general, source-specific standards are beginning to be developed.

B. EC Implementation of Treaties and Conventions

The following Conventions and Treaties have been adopted by the EEC:

- Convention for the Prevention of Marine Pollution from Land-Based Sources.
- Convention for the Protection of the Mediterranean Sea against Pollution.
- Agreement for Cooperation in Dealing with Pollution of the North Sea by Oil and Other Harmful Substances.

C. Key Compliance Definitions

- *Accuracy* - the difference between the true value of the parameter examined and the average experimental value obtained (79/869/EEC).

- *Agglomeration* - means an area where the population and/or economic activities are sufficiently concentrated for urban wastewater to be collected and conducted to an urban wastewater treatment plant or to a final discharge point.

- *Appropriate Treatment* - means treatment of urban wastewater by any process and/or disposal system which after discharge allows the receiving waters to meet the relevant quality objectives and the relevant provisions of this and other community directives.

- *Aquatic Environment* - inland surface water, territorial waters, internal coastal waters, and groundwater; note, however, that separate regulations apply to groundwater.

- *Bathing Area* - any place where bathing water can be found (76/160/EEC).

- *Bathing Season* - the period during which a large number of bathers [i.e. swimmers] can be expected, in the light of local customs and local rules concerning swimming and weather conditions (76/160/EEC).

- *Bathing Water* - all running or still fresh waters or parts thereof and sea water in which either

    1. Bathing [i.e. swimming] is explicitly authorized by the government of the host nation or
    2. Bathing is not prohibited and is traditionally practiced by a large number of bathers. This does not include water used in swimming pools or intended for therapeutic purposes (76/160/EEC).

- *Cadmium* - the chemical element cadmium or the cadmium contained in any of its compounds (83/513/EEC).

- *Category A1* - surface water requiring simple physical treatment and disinfection, e.g. rapid filtration and disinfection.

- *Category A2* - surface water requiring normal physical treatment, chemical treatment and disinfection, e.g. pre-chlorination, coagulation, flocculation, decantation, filtration, disinfection by final chlorination.

- *Category A3* - surface water requiring intensive physical and chemical treatment, extended treatment and disinfection, e.g. chlorination to break-point, coagulation, flocculation, decantation, filtration, adsorption (activated carbon), disinfection by ozone and final chlorination.

- *Collecting System* - means a system of conduits which collects and conducts urban wastewater.

- *Cyprinid Waters* - fresh waters which support or become capable of supporting fish belonging to the cyprinids (Cyprinidae), or other species such as pike (Esox lucius), perch (Perca fluviatilis), and eel (Anguilla anguilla). Does not include waters in natural or artificial fish ponds used for intensive fish-farming.

- *Detergent* - a substance the composition of which has been specially studied with a view to developing its detergent properties, and which is made up of essential constituents (surfactants) and, in general, additional constituents (adjuvants, intensifying agents, fillers, additives and other auxiliary constituents).

- *Direct Discharge* - introduction into groundwater without percolation through the ground or topsoil (80/68/EEC).

- *Discharge* - introduction into the aquatic environment, with the exception of discharges of dredging, operational discharges from ships in territorial waters, and dumping from ships in territorial waters (76/464/EEC).

- *Domestic Wastewater* - means wastewater from residential settlements and services which originates predominantly from the human metabolism and from household activities.

- *Drinking Water* - all surface water intended for human consumption and supplied by distribution networks for public use.

- *Eutrophication* - means the enrichment of water by nutrients, especially compounds of nitrogen and/or phosphorus, causing an accelerated growth of algae and higher forms of plant life to produce an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned

- *Existing Plant* - an industrial plant which is operational on or after 19 October 1982.

- *Extraction of Lindane* - the extraction of lindane from a mixture of hexachlorocyclohexane isomers (84/491/EEC).

- *Fresh-Water Limit* - the place in the watercourse where, at low tide and in a period of low fresh-water flow, there is an appreciable increase in salinity due to the presence of sea water (76/464/EEC).

- *Groundwater* - all water that is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil (80/68/EEC).

- *Hexachlorocyclohexane (HCH)* - the isomers of 1,2,3,4,5,6-hexachlorocyclohexane (84/491/EEC).

- *Indirect Discharge* - the introduction into groundwater of substances after percolation through the ground or topsoil.

- *Industrial Wastewater* - means any wastewater which is discharged from premises used for carrying on any trade or industry, other than domestic wastewater and runoff rain water

- *Inland Surface Water* - all static or flowing fresh surface water situated in the territory of one or more EEC member states.

- *Internal Coastal Waters* - all waters on the landward side of the base line from which the breadth of territorial waters is measured, extending, in the case of watercourses, up to the fresh-water limit.

- *Less Sensitive Areas* - designated by each Member State. A marine water body or area can be identified as a less sensitive area if the discharge of wastewater does not adversely affect the environment as a result of morphology, hydrology or specific hydraulic conditions which exist in that area.

- *Limit of Detection* - the minimum value of the parameter examined which it is possible to detect.

- *Lindane* - a product containing at least 99 percent of the gamma-isomer of 1,2,3,4,5,6-hexachlorocyclohexane.

- *Maritime Area* - the high seas, the territorial seas of the parties to the Convention for the Prevention of Marine Pollution from Land-Based Sources, and waters on the landward side of the base lines from which the breadth of the territorial sea is measured and extending in the case of watercourses (except when decided otherwise) up to the freshwater limit.

- *Mediterranean Sea* - the maritime waters of the Mediterranean Sea proper, including its gulfs and seas, bounded to the west by the meridian passing through Cape Spartel Lighthouse, at the entrance of the Straits of Gibraltar, and to the east by the southern limits of the Straits of the Dardanelles between the Mehmetcik and Kumkale lighthouses.

- *Mercury* - the chemical element mercury or the mercury contained in any of its compounds.

- *New Plant* - an industrial plant which becomes operational or whose capacity for handling regulated substances is substantially increased after 19 October 1982.

- *P.E. (population equivalent)* - means the organic biodegradable load having a five-day biochemical oxygen demand (BOD_5) of 60 g of oxygen per day.

- *Pollution from Land-Based Sources* - the pollution of the maritime area through watercourses, from the coast, including introduction through underwater or other pipelines, or from man-made structures.

- *Pollution of Groundwater* - the discharge by man, directly or indirectly, of substances or energy into groundwater, the results of which are such as to endanger human health or water supplies, harm living resources and the aquatic ecosystem, or interfere with other legitimate uses of water.

- *Pollution of the Aquatic Environment* - the discharge by man, directly or indirectly, of substances or energy into the aquatic environment, the results of which are such as to cause hazards to human health, harm to living resources and to aquatic ecosystems, damage to amenities, or interference with other legitimate uses of water.

- *Precision* - the range within which 95 percent of the results of measurements made on a single sample, using the same method, are located.

- *Primary Treatment* - means treatment of urban wastewater by a physical and/or chemical process involving settlement of suspended solids, or other processes in which the BOD_5 of the incoming wastewater is reduced by at least 20 percent before discharge and the total suspended solids of the incoming wastewater are reduced by at least 50 percent.

- *Reference Method of Measurement* - a designated measurement principle or brief description of a procedure for determining the value of parameters for surface water.

- *Salmonid Waters* - fresh waters which support or become capable of supporting fish belonging to species such as salmon (Salmo salar), trout (Salmo trutta), grayling (Thymallus thymallus), and whitefish (Coregonus). The term does not include waters in natural or artificial fish ponds used for intensive fish-farming.

- *Secondary Treatment* - means treatment of urban wastewater by a process generally involving biological treatment with a secondary settlement or other process in which the requirements established in Table 1 of annex i to Directive 91/271/EEC are respected.

- *Sensitive Areas* - are specified by the Host Nation. A water body must be identified as a sensitive area if it falls into one of the following groups:

  - Natural freshwater bodies, estuaries and coastal waters which are found to be eutrophic or which in the near future may become eutrophic if protective action is not taken
  - Surface freshwaters intended for the abstraction of drinking water which could contain more than the concentration of nitrate laid down under the relevant provisions of Council Directive 75/440/EEC concerning the quality required of surface water intended for the abstraction of drinking water.

- *Surface Water* - for the purpose of Directive 75/440/EEC (Drinking Water Standards), means surface fresh water used or intended for use in the abstraction of drinking water. Does not include ground water, brackish water, or water intended to replenish water-bearing beds (75/440/EEC, Article 1).

- *Urban Wastewater* - domestic wastewater or the mixture of domestic wastewater with industrial wastewater and/or runoff rain water.

- *Water Intended for Human Consumption* - all water supplied for human consumption or used in the production of substances intended for human consumption, if it affects the quality of the product. The water may be in its original state or treated, and of any origin. The term does not apply to natural mineral water or medicinal waters officially defined as such.

WATER QUALITY MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(*)
All installations	10-1 and 10-2	(1)(2)
If the installation supplies drinking water	10-3 through 10-8	(2)(4)
If the installation discharges wastewater	10-9 through 10-11	(2)(3)
If the installation discharges wastewater to surface waters	10-12 and 10-13	(2)(3)(4)
If the installation discharges wastewater to groundwater	10-14 and 10-15	(2)(3)(4)
If the installation discharges wastewater to maritime areas	10-16 and 10-17	(2)(3)(4)
If the installation discharges mercury, cadmium, or HCH	10-18 through 10-21	(2)(3)

(*)CONTACT/LOCATION CODE:

(1) BCE (Environmental Planning)
(2) BEE (Bioenvironmental Engineering)
(3) Wastewater Treatment Plant Superintendent
(4) BCE (Natural Resources Planner)

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(*)
If the installation has swimming waters	10-22 and 10-23	(1)(2)
If the installation operates on or near the North or Mediterranean Seas	10-24 through 10-28	(1)(2)(4)
If the installation has aquatic life	10-29 through 10-32	(2)(4)
If the installation uses fertilizers	10-33 and 10-34	(4)

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Records to Review

- Bacterial and chemical analyses of drinking water, including sampling dates and locations, dates of analyses, analytical methods used, and results of analyses
- Monthly operating reports (flow, chlorine residual, etc)
- Records of planning and construction of injection wells
- Results of injection well monitoring
- Records, of facility projects, including any petition for review, that may potentially cause contamination of a sole source aquifer through its recharge zone
- Discharge monitoring reports for the past year
- Laboratory records and procedures
- Monthly operating reports for wastewater treatment facilities
- Flow monitoring calibration certification and supporting records
- Ash pond volume certification and supporting records
- Red water inspection records
- Spill Prevention, Control, and Countermeasures (SPCC) Plan
- All records required by SPCC
- Sewage treatment plant operator certification
- Sewer and storm drain layout

Physical Features to Inspect

- Drinking water collection, treatment, and distribution facilities
- On-base laboratory analysis facilities
- Underground injection wells
- Discharge outfall pipes
- Wastewater treatment facilities
- Industrial treatment facilities
- Streams, rivers, open waterways
- Floor and sink drains (especially in industrial areas)
- Storm water collection points (especially in industrial areas)
- Oil storage tanks
- Oil/water separators

Sources to Interview

- BCE (Base Civil Engineer)
  - Environmental Planning
  - Environmental Coordinator
  - Collection, Treatment, and Distribution facility operators
  - Natural Resources Planner
- BEE (Bioenvironmental Engineering)
- Wastewater Treatment Plant Superintendent

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
ALL INSTALLATIONS	
10-1. Determine actions or changes since previous review of water quality (GMP).	Examine copy of previous review report to determine if noncompliance issues have been resolved. (1)(2)
10-2. Copies of documents pertaining to water quality should be maintained at the installation (GMP).	Determine if the installation maintains copies of the following: (1)(2) - 73/404/EEC, *Council Directive of 22 November 1973 on the approximation of the laws of the Member States relating to detergents.* - 75/437/EEC, *Council Decision of 3 March 1975 concluding the Convention for the prevention of marine pollution from land-based sources, including annex, text of the Convention.* - 75/440/EEC, *Council Directive of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the Member States.* - 76/160/EEC, *Council Directive of 8 December 1975 concerning the quality of bathing water.* - 76/464/EEC, *Council Directive of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community.* - 77/585/EEC, *Council Decision of 25 July 1977 concluding the Convention for the protection of the Mediterranean Sea against pollution and the Protocol for the prevention of the pollution of the Mediterranean Sea by dumping from ships and aircraft, including texts of the Convention and Protocol.* - 77/586/EEC, *Council Decision of 25 July 1977 concluding the Convention for the protection of the Rhine against chemical pollution and an Additional Agreement to the Agreement, signed in Berne on 29 April 1963, concerning the International Commission for the Protection of the Rhine against Pollution.* - 78/659/EEC, *Council Directive of 18 July 1978 on the quality of fresh waters needing protection or improvement in order to support fish life.* - 79/923/EEC, *Council Directive of 30 October 1979 on the quality of shellfish waters.* - 80/68/EEC, *Council Directive of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances.* - 80/778/EEC, *Council Directive of 15 July 1980 relating to the quality of water intended for human consumption.* - 81/420/EEC, *Council Decision of 19 May 1981 on the conclusion of the Protocol concerning cooperation in combating pollution of the Mediterranean Sea by oil and other harmful substances in case of emergency, including text of the Protocol.* - 82/176/EEC, *Council Directive of 22 March 1982 on limit values and quality objectives for mercury discharges by the chlor-alkali electrolysis industry.*

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-2. (continued)	- 83/101/EEC, *Council Decision of 28 February 1983 concluding the Protocol for the protection of the Mediterranean Sea against pollution from land-based sources, with text of the Protocol.* - 83/513/EEC, *Council Directive of 26 September 1983 on limit values and quality objectives for cadmium discharges.* - 84/358/EEC, *Council Decision of 28 June 1984 concerning the conclusion of the Agreement for cooperation in dealing with pollution of the North Sea by oil and other harmful substances, with text of the Agreement.* - 84/491/EEC, *Council Directive of 9 October 1984 on limit values and quality objectives for discharges of hexachlorocyclohexane.* - 85/613/EEC, *Council Decision of 20 December 1985 concerning the adoption, on behalf of the Community, of programs and measures relating to mercury and cadmium discharges under the Convention for the prevention of marine pollution from land-based sources.* - 86/280/EEC, *Council Directive of 12 June 1986 on limit values and quality objectives for discharges of certain dangerous substances included in list I of the Annex to Directive 76/464/EEC.* - 91/271/EEC, *Council Directive of 21 May 1991 concerning urban wastewater treatment.* - 91/676/EEC, *Council Directive of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources.*
DRINKING WATER STANDARDS	
10-3. Surface water used as a source of drinking water is required to meet specific standards (75/440/EEC, Article 1 through 5, Article 8, Annexes I and II).	(NOTE: These requirements may not apply to: - ground water, brackish water, and water intended to replenish waterbearing beds - in cases of floods or other natural disaster - in the case of certain parameters marked O in Tables 10-1 to 10-3, because of exceptional meteorological or geographical conditions - where surface water undergoes natural enrichment in certain substances as a result of which it would exceed the limits laid down for categories A1, A2, and A3 in Tables 10-1 to 10-3 - in the case of surface water in shallow lakes or virtually stagnant water, for parameters marked with an asterisk in Tables 10-1 to 10-3, applicable only to lakes with an average depth not exceeding 20 meters, with no exchange of water slower than one year, and without a discharge of wastewater into the water body.) Verify that if the installation uses simple physical treatment and disinfection (e.g. rapid filtration and disinfection) on surface water used as a source for drinking water, the surface water meets the standards in column I of Table 10-1. (2)(4) Verify that if the installation uses normal physical treatment, chemical treatment and disinfection, e.g. pre-chlorination, coagulation, flocculation, decantation, filtration, disinfection (final chlorination), the surface water meets the standards in column I of Table 10-2. (2)(4)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
10-3. (continued)	Verify that if the installation uses intensive physical and chemical treatment, extended treatment and disinfection (e.g. chlorination to breakpoint, coagulation, flocculation, decantation, filtration, adsorption [activated carbon], disinfection [ozone, final chlorination]), the surface water meets the standards in column I of Table 10-3. (2)(4) Verify that each parameter is tested by the required, or equivalent, method outlined in Table 10-4. (2)(4) Verify that surface water used as a source of drinking water is tested as frequently as required for its category (see Table 10-5) and does not deviate from the standards by more than 50 percent. The permitted 50 percent deviation does not apply to temperature, pH, dissolved oxygen, or microbiological parameters: (2)(4) - consecutive water samples taken at statistically suitable intervals do not deviate from the relevant parametric values. Any deviation of samples from the standards does not indicate a danger to public health, even if it conforms to the statistical requirements. Verify that if, in general, surface water used as a source of drinking water does not meet the mandatory limits for physical, chemical, and microbiological characteristics in Table 10-3, an exemption for use has been granted or some method such as blending is used to upgrade the water. (2)(4)
10-4. The containers used for sampling of surface water used as a source of drinking water, the agents or methods used to preserve part of a sample for the analysis of one or more parameters, the conveyance and storage of samples and the preparation of samples for analysis must not cause any change in the results of the analysis (79/869/EEC, article 5).	Verify that sampling and preservation of the samples is done so that samples are not contaminated. (2)
10-5. Surface water intended for use as a source of drinking water should conform to specific guidelines (GMP).	Verify that surface water used as a source of drinking water conforms to the appropriate guidelines founds in column G of Table 10-1, Table 10-2, and Table 10-3. (2) (NOTE: This GMP is based on principles found in EC directive 75/440/EEC.)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-6. Water intended for human consumption on installations is required to meet specific standards (80/778/EEC, Articles 4, 7, 12 and Annex I, Section A through E, Annex II and Annex III).	Verify that drinking water supplied on the installation meets the standards outlined in column I of Table 10-6. (2) Verify that each parameter is tested by the required, or equivalent, method outlined in Table 10-7. (2) Verify that each parameter is tested as frequently as required for the population served (See Table 10-8). (2) Verify that sampling is done at the point where it is made available to the users. (2) (NOTE: These requirements do not apply to: - natural mineral waters recognized or defined as such by the competent national authorities - medicinal waters recognized as such by the competent national authorities.)
10-7. Water intended for human consumption should meet specific guidelines (GMP).	Verify that that water intended for human consumption meets the guidelines found in Tables 10-1 through 10-3. (2) (NOTE: This GMP is based on guidelines found in 80/778/EEC, Article 7.)
10-8. Softened water intended for human consumption is required to have minimum concentrations of certain substances (80/778/EEC, Annex I, Section F).	Verify that softened water intended for human consumption meets the standards in Table 10-9. (2)
WASTEWATER DISCHARGES	
10-9. Installations must ensure that urban wastewater entering collection systems is subject to secondary treatment or an equivalent treatment before discharge (91/271/EEC, Article 4.1).	Verify that, before discharge, urban wastewater entering collection systems is subject to secondary treatment or an equivalent treatment as follows: (2)(3) - at the latest by 31 December 2000 for all discharges from agglomerations of more than 15,000 p.e. - at the latest by 31 December 2005 for all discharges from agglomerations of between 10,000 and 15,000 p.e. - at the latest by 31 December 2005 for discharges to fresh-water and estuaries from agglomerations of between 2000 and 10,000 p.e. (NOTE: The load expressed in p.e. shall be calculated on the basis of the maximum average weekly load entering the treatment plant during the year, excluding unusual situations such as those due to heavy rains.)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-10. Discharges from urban wastewater treatment plants must meet certain requirements (91/271/EEC, Article 4.3).	Verify that discharges from urban wastewater treatment plants meet the following requirements: (2)(3) - Wastewater treatment plants shall be designed or modified so that representative samples of the incoming wastewater and of treated effluent can be obtained before discharge to receiving waters. - Discharges from urban wastewater treatment plants shall meet the requirements shown in Table 10-10. - Discharges from urban wastewater treatment plants to those sensitive areas which are subject to eutrophication, as idenified by the Member State, must also meet the requirements shown in Table 10-11. Verify that no more than the maximum number of samples specified in Table 10-12 are permitted to fail in any one year. (2)(3) (NOTE: Urban wastewater discharges from agglomerations of between 10,000 and 150,000 p.e. to coastal waters and those from agglomerations of between 2000 and 10,000 p.e. to estuaries situated in less sensitive areas designated by the Member State, may be subjected to treatment less stringent than the above requirements, provided that: - such discharges receive at least primary treatment in conformity with with control procedures laid down in Table 10-13 - comprehensive studies indicate that such discharges will not adversely affect the environment.)
10-11. Urban wastewater entering collection systems must be subject to appropriate treatment before discharge in certain cases (91/271/EEC, Article 7).	Verify that urban wastewater entering collection systems is subject to appropriate treatment before discharge, in the following cases: (2)(3) - for discharges to freshwater and estuaries from agglomerations of less than 2000 p.e. - for discharges to coastal waters from agglomerations of less than 10,000 p.e.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

SURFACE WATERS
 	
10-12. The discharge to inland surface waters, territorial surface waters, or internal coastal waters of certain dangerous substances is restricted (76/464/EEC, Articles 1,3, and 7; 86/280/EEC; 88/347/EEC).
	Verify that installations that discharge the following substances into inland surface waters, territorial surface waters, or internal coastal waters have been granted authorization to do so by the competent authority: (2)(3)(4)
	
	- organohalogen compounds and substances which may form such compounds in the aquatic environment
	- organophosphorus compounds
	- organotin compounds
	- substances which have been proved to have carcinogenic properties in or via the aquatic environment
	- mercury and its compounds
	- cadmium and its compounds
	- persistent mineral oils and hydrocarbons of petroleum origin
	- persistent synthetic substances which may float, remain in suspension or sink, and which may interfere with any use of the waters
	- selected metals, metalloids, and their compounds
	  - zinc
	  - copper
	  - nickel
	  - chromium
	  - lead
	  - selenium
	  - arsenic
	  - antimony
	  - molybdenum
	  - titanium
	  - tin
	  - barium
	  - beryllium
	  - boron
	  - uranium
	  - vanadium
	  - cobalt
	  - thallium
	  - tellurium
	  - silver
	- biocides and derivatives not listed above
	- substances which have a deleterious effect on the taste or smell of the products for human consumption derived from the aquatic environment
	- toxic or persistent organic compounds of silicon, and substances which may give rise to such compounds in water, excluding those which are biologically harmless or are rapidly converted in water into harmless substances
	- inorganic compounds of phosphorus and elemental phosphorus
	- non-persistent mineral oils and hydrocarbons of petroleum origin
	- cyanides and fluorides
	- substances which have an adverse effect on the oxygen balance, particularly ammonia and nitrites.
	
	Verify that authorized discharges fall within the period of time and the discharge standards specified by the competent authority. (2)(3)(4)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
10-13. The discharge into the surface waters of the Rhine Basin of certain dangerous substances is restricted (77/586/EEC and the Convention for the Protection of the Rhine Against Chemical Pollution, Article 3, Sect. 1).	Verify that any discharges of the following substances into the surface waters of the Rhine Basin has prior authorization of the host nation: (2)(3)(4) - organohologen compounds and substances which may form such compounds in the aquatic environment - organophosphorus compounds - organotin compounds - substances in respect of which it has been proved that they possess carcinogenic properties in or via the aquatic environment - mercury and its compounds - cadmium and its compounds - persistent mineral oils and hydrocarbons of petroleum origin.
GROUNDWATER	
10-14. The discharge into groundwater of certain dangerous substances is prohibited (80/68/EEC, Articles 2 and 3, Section a).	Verify that the installation does not discharge any of the following substances into groundwater: (2)(3)(4) - organohalogen compounds and substances which may form such compounds in the aquatic environment - organophosphorus compounds - organotin compounds substances which possess carcinogenic, mutagenic or teratogenic properties in or via the aquatic environment - *mercury and its compounds* - cadmium and its compounds - mineral oils and hydrocarbons - cyanides. (NOTE: for the purposes of this protocol: - "groundwater" means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or topsoil - "direct discharge" means the introduction into groundwater of substances listed in this protocol or the following one without percolation through the ground or topsoil - "indirect discharge" means the introduction into groundwater of substances listed in this protocol or the following one without percolation through the ground or topsoil - "pollution" means the discharge by man, directly or indirectly, of substances or energy into the groundwater, the results of which are such as to endanger human health or water supplies, harm living resources and the aquatic ecosystem, or interfere with other legitimate uses of water.)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

10-15. The discharge into groundwater of certain dangerous substances is subject to regulation by national authority (80/68/EEC, Section b).	Verify that any discharge into groundwater of the following substances is permitted by the host government with respect to place and methods of disposal, precautions, maximum permissible quantity, and measures for monitoring the quality of groundwater: (2)(3)(4)
	
	- selected metals, metalloids, and their compounds:
	  - zinc
	  - copper
	  - nickel
	  - chromium
	  - lead
	  - selenium
	  - arsenic
	  - antimony
	  - molybdenum
	  - titanium
	  - tin
	  - barium
	  - beryllium
	  - boron
	  - uranium
	  - vanadium
	  - cobalt
	  - thallium
	  - tellurium
	  - silver
	- *biocides and derivatives* not listed elsewhere
	- substances which have a deleterious effect on the taste and/or odor of groundwater, and compounds liable to cause the formation of such substances in such water and render it unfit for human consumption
	- toxic or persistent organic compounds of silicon, and substances which may cause the formation of such compounds in water and to render it unfit for human consumption
	- inorganic compounds of phosphorus and elemental phosphorus
	- fluorides
	- ammonia and nitrites.
	
	(NOTE: For the purposes of this protocol,
	- "groundwater" means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or topsoil
	- "direct discharge" means the introduction into groundwater of substances listed in this protocol or the following one without percolation through the ground or topsoil
	- substances listed in this protocol or the following one without percolation through the ground or topsoil
	- "pollution" means the discharge by man, directly or indirectly, of substances or energy into the groundwater, the results of which are such as to endanger human health or water supplies, harm living resources and the aquatic ecosystem, or interfere with other legitimate uses of water.)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
MARITIME AREAS	
10-16. The discharge of certain dangerous substances into maritime areas through watercourses, from the coast (including introduction through underwater or other pipelines) or from man-made structures, is prohibited (75/437/EEC, Article 4 and Annex A, part 1).	Verify that none of the following substances is discharged from the installation into maritime areas: (2)(3)(4) - organohalogen compounds and substances which may form such compounds in the marine environment, excluding those which are biologically harmless, or which are rapidly converted in the sea into substances which are biologically harmless - mercury and mercury compounds - cadmium and cadmium compounds - persistent synthetic materials which may float, remain in suspension or sink, and which may seriously interfere with any legitimate use of the sea - persistent oils and hydrocarbons of petroleum origin.
10-17. The discharge of certain dangerous substances into maritime areas through watercourses, from the coast (including introduction through underwater or other pipelines) or from man-made structures, is restricted (75/437/EEC, Article 4 and Annex A, Part 2).	Verify that the discharge from the installation into the maritime area of any of the following substances is authorized by the competent authority of the host nation: (2)(3)(4) - organic compounds of phosphorus, silicon and tin, and substances which may form such compounds in the marine environment, excluding those which are biologically harmless, or which are rapidly converted in the sea into substances which are biologically harmless - elemental phosphorus - non-persistent oils and hydrocarbons of petroleum origin - the following elements and their compounds: - arsenic - chromium - copper - lead - nickel - zinc - substances having a deleterious effect on the taste and/or smell of products derived from the marine environment for human consumption. These substances are to be designated by the Commission of parties to the Convention for the Prevention of Marine Pollution from Land-Based Sources.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
SPECIFIC SUBSTANCES	
10-18. The discharge of mercury from industrial plants in which alkali chlorides are electrolyzed by means of mercury cells is restricted (82/176/EEC, Article 3 and Annex I).	Verify that the concentration of mercury in recycled brine and lost brine discharged from the installation does not exceed 50 micrograms per liter of mercury-containing water discharged. (2)(3) Verify that the concentration of mercury in recycled brine discharged from the chlorine production unit does not exceed 0.5 grams of mercury per metric ton of installed chlorine production capacity. (2)(3) Verify that the concentration of mercury in recycled brine in all mercury-containing water discharged from the installation does not exceed 1.0 grams of mercury per metric ton of installed chlorine production capacity. (2)(3) Verify that the concentration of mercury in lost brine does not exceed 5.0 grams per metric ton of installed chlorine production capacity. (2)(3)
10-19. The discharge of cadmium from electroplating activities into the aquatic environment is restricted (83/513/EEC, Article 3 and Annex I).	Verify that any discharge of cadmium from electroplating activities on the installation does not exceed 0.2 mg/l of effluent or a monthly average of 0.3 g/kg of cadmium handled. (2)(3)
10-20. The discharge of HCH into the aquatic environment is restricted (84/491/EEC, Article 3 and Annex I).	Verify that discharges of HCH from the production of HCH on the installation do not exceed 2 grams of HCH per metric ton of HCH produced or 2 mg of HCH per liter discharged. (2)(3) Verify that discharges of HCH from the extraction of lindane on the installation do not exceed 4g of HCH per metric ton of HCH treated or 2 mg of HCH per liter discharged. (2)(3) Verify that the sum of discharges from the production of HCH and the extraction of lindane on the installation do not exceed 5 grams of HCH per metric ton of HCH produced or 2 mg of HCH per liter discharged. (2)(3)
10-21. Detergents marketed and used at the installation must meet specific standards (73/404/EEC, art. 2).	Verify that the surfactants in detergents marketed or used on the installation are at least 90 percent degradable for each of the following categories: anionic, cationic, non-ionic and ampholytic. (2)(3)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
BATHING/SWIMMING WATER QUALITY STANDARDS	
10-22. Bathing water (see definitions) is required to meet specific standards (76/160/EEC, Articles 1 through 3, 5, and 6).	Verify that bathing water on the installation meets the standards in Table 10-16. (1)(2) Verify that each parameter for the quality of bathing water is tested as frequently as required by Table 10-16. (1)(2) (NOTE: Compliance is achieved if: samples of water, taken at the same sampling point and at the intervals specified in Table 10-16, show that it conforms to the parametric values for the quality of the water concerned, in the case of: - 95 percent of the samples for parameters corresponding to those specified in column I of Table 10-16 - 90 percent of the samples in all other cases, with the exception of exception of the "total coliform" and "fecal coliform" parameters, where the percentage may be 80 percent.) (NOTE: In the case of the 5, 10, or 20 percent of the samples which do not comply: - the water may deviate from the parametric values in question [except for microbiological parameters, pH and dissolved oxygen] by up to 50 percent, but - consecutive water samples taken at statistically suitable intervals may not deviate from the relevant parametric values.)
10-23. Bathing water should meet specific guide standards (GMP).	Verify that bathing water on the installation meets the guide standards in column G of Table 10-14. (1)(2) (NOTE: This GMP is based on guidelines found in EEC Directive 76/160/EEC.)
ISSUES RELATED TO THE MEDITERRANEAN SEA AND NORTH SEA	
10-24. The dumping into the Mediterranean Sea from ships and aircraft of certain wastes and other substances is prohibited (77/585/EEC; Protocol for the prevention of pollution of the Mediterranean Sea by dumping from ships and aircraft, Article 4 and Annex I).	Verify that ships and aircraft based on and operated from the installation do not dump any of the following substances into the Mediterranean Sea: (2)(4) - organohalogen compounds and compounds which may form such substances in the marine environment, excluding those which are nontoxic or which are rapidly converted in the sea into substances which are biologically harmless, provided that they do not make edible marine organisms unpalatable

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-24. (continued)	- organosilicon compounds and compounds which may form such substances in the marine environment, excluding those which are nontoxic or which are rapidly converted in the sea into substances which are biologically harmless, provided that they do not make edible marine organisms unpalatable - mercury and mercury compounds - cadmium and cadmium compounds - persistent plastic and other persistent synthetic materials which may materially interfere with fishing or navigation, reduce amenities, or interfere with other legitimate uses of the sea - crude oil and hydrocarbons which may be derived from petroleum, and any mixtures containing any of these, taken on board for the purpose of dumping - high-, medium-, and low-level radioactive wastes or other high-, medium-, or low-level radioactive matter to be defined by the International Atomic Energy Agency - acid and alkaline compounds of such composition and in such quantity that they may seriously impair the quality of sea water. The composition and quantity is to be determined by the parties to the Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft - materials in whatever form (e.g. solids, liquids, semi-liquids, gases, or in a living state) produced for biological or chemical warfare, other than those rapidly rendered harmless by physical, chemical or biological processes, provided that they do not make edible marine organisms unpalatable or endanger human or animal health. (NOTE: This list does not apply to wastes or other materials, such as sewage sludge and dredge spoils, containing organohalogen compounds, organosilicon compounds, mercury or its compounds, cadmium or its compounds, persistent synthetic materials, crude oil or hydrocarbons as trace contaminants. The dumping of such wastes is subject to regulation by national authority as appropriate.)
10-25. The dumping into the Mediterranean Sea from ships and aircraft of certain wastes and other substances is restricted (77/585/EEC; Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft, Article 5 and Annex II).	Verify that dumping from ships and aircraft based on the installation into the Mediterranean Sea of any of the following substance is authorized by the competent authority of the nation in which the waste is loaded: (1)(2) - arsenic - lead - copper - zinc - beryllium - chromium - nickel - vanadium - selenium - antimony and their compounds - cyanides - fluorides - pesticides and their by-products not prohibited above

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-25. (continued)	- synthetic organic chemicals, other than those prohibited above, likely to produce harmful effects on marine organisms or to make edible marine organisms unpalatable - acid and alkaline compounds not covered in the previous protocol containers, scrap metal and other bulky wastes liable to sink to the sea bottom which may present a serious obstacle to fishing or navigation - substances which, though of a non-toxic nature may become harmful owing to the quantities in which they are dumped, or which are liable to reduce amenities seriously or to endanger human life or marine organisms or to interfere with navigation - radioactive waste or other radioactive matter not prohibited above.
10-26. Discharges of certain dangerous substances into the Mediterranean Sea are restricted (83/101/EEC, Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources).	Verify that installations that discharge the following substances from land-based sources into the Mediterranean Sea have been granted authorization to do so by the competent authority: (1)(2) - organohalogen compounds and substances which may form such compounds in the marine environment, except those which are biologically harmless or which are rapidly converted into biologically harmless substances - organophosphorous compounds and substances which may form such compounds in the marine environment, except those which are biologically harmless or which are rapidly converted into biologically harmless substances - organotin compounds and substances which may form such compounds in the marine environment, except those which are biologically harmless or which are rapidly converted into biologically harmless substances - mercury and mercury compounds - cadmium and cadmium compounds - used lubricating oils - persistent synthetic materials which may float, sink or remain in suspension and which may interfere with any legitimate use of the sea - substances having proven carcinogenic, teratogenic or mutagenic properties in or through the marine environment - radioactive substances, including their wastes, when their discharges do not comply with the principles of radiation protection as defined by the competent international organizations, taking into account the protection of the marine environment. (NOTE: The Mediterranean Sea includes waters on the landward side of the baselines from which the breadth of the territorial sea is measured and extending, in the case of watercourses, up to the freshwater limit, and saltwater marshes communicating with the sea.)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-26. (continued)	(NOTE: This protocol applies to: - polluting discharges reaching the sea from land-based sources, in particular - from outfalls discharging into the sea or through coastal dispersal - through watercourses, including underground watercourses, or through runoff - pollution from land-based sources transported by the atmosphere - polluting discharges from fixed man-made offshore structures.)
10-27. Accidents causing or likely to cause pollution of the Mediterranean Sea by oil or harmful substances, as well as the presence in the Mediterranean Sea of oil or other harmful substances must be reported to the appropriate authority immediately (81/420/EEC, Protocol concerning cooperation in combating pollution of the Mediterranean Sea by oil and other harmful substances in cases of emergency, Article 8).	Verify that the masters of all ships and the pilots of all aircraft based on the installation are aware of procedures for reporting such facts and the required contents of the reports as follows: (1)(2) - in general: - the identification of the source of pollution (identity of the ship, when appropriate) - the geographic position, time and date of the occurrence of the incident or of the observation - the wind and sea conditions prevailing in the area - where the pollution originates from a ship, relevant details respecting the conditions of the ship - in particular: - a clear indication or description of the harmful substances involved, including the correct technical names of such substances (trade names should not be used in place of the correct technical names) - a statement or estimate of the quantities, concentrations and likely conditions of harmful substances discharged or likely to be discharged into the sea - where relevant, a description of the packaging and identifying marks - the name of the consignor, consignee or manufacturer - clear indication, whenever possible, whether the harmful substances discharged or likely to be discharged is oil or a noxious liquid, solid or gaseous substance and whether such substance was or is carried in bulk or contained in packaged form, freight containers, portable tanks, or road and rail tank wagons. Verify that each report is supplemented, as necessary, by any relevant information requested by a recipient of the report or deemed appropriate by the person sending the report. (1)(2) Verify that masters of ships and pilots of aircraft supplement, as far as possible, the initial report, as necessary, with information concerning further developments and comply as fully as possible with requests from affected States for additional information. (1)(2)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
10-28. Accidents causing or likely to cause pollution of the North Sea by oil or harmful substances, as well as the presence in the North Sea of oil or other harmful substances must be reported to the appropriate authority immediately (84/358/EEC, Agreement for Cooperation in Dealing with Pollution of the North Sea by Oil and Other Harmful Substances, art. 5, sec. 2).	Verify that the masters of all ships and the pilots of all aircraft based on the installation are prepared to report such facts on the standard form approved by the parties to the Agreement for Cooperation in Dealing with Pollution of the North Sea by Oil and Other Harmful Substances. (1)(2)
AQUATIC LIFE WATER QUALITY STANDARDS	
10-29. Shellfish waters in Member States must meet specific standards (79/923/EEC, Articles 1, 2, 6, and 7).	Determine whether any coastal or brackish waters in the installation have been designated by the Host Nation as shellfish waters. (2)(4) Verify that designated shellfish waters are sampled and analyzed at least as frequently as specified in Table 10-15. (2)(4) Verify that designated shellfish waters meet the mandatory standards in Table 10-15 or, if applicable, the more stringent standards set by the Host Nation. (2)(4) (NOTE: Compliance is achieved if samples of such waters, taken at the minimum frequency specified in Table 10-15, at the same sampling point and over a period of 12 months, conform to the values specified in Table 10-15 with regard to 100 percent of the samples for organohalogenated substances and metals, 95 percent of the samples for salinity and dissolved oxygen, and 75 percent of the samples for salinity and dissolved oxygen, and 75 percent of the samples for the other parameters listed in Table 10-15.)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-30. Shellfish waters should meet specific guidelines for quality (GMP).	Verify that designated shellfish waters meet the guide standards given in column G of Table 10-15. (2)(4) (NOTE: This GMP is based on guidelines found in EEC Directive 79/923/EEC.) (NOTE: Compliance is achieved if samples of such waters, taken at the minimum frequency specified in Table 10-15, at the same sampling point and over a period of 12 months, conform to the values specified in Table 10-15 with regard to 100 percent of the samples for organohalogenated substances and metals, 95 percent of the samples for salinity and dissolved oxygen, and 75 percent of the samples for salinity and dissolved oxygen, and 75 percent of the samples for the other parameters listed in Table 10-15.)
10-31. Fresh water supporting fish life must be maintained and protected to meet specific standards (78/659/EEC, Articles 2 through 4, 7).	Determine whether the Host Nation has designated any waters on the installation as cyprinid waters or salmonid waters. (2)(4) Determine whether the host nation has set standards for cyprinid or salmonid waters that are more stringent than those given in column I of Table 10-16. (2)(4) Verify that cyprinid or salmonid waters on the installation meet the applicable standards. (2)(4) (NOTE: These requirements do not apply to water in natural or artificial fish ponds used for intensive fish farming.)
10-32. Fresh water supporting fish life should meet specific guidelines (GMP).	Verify that cyprinid or salmonid waters on the installation meet the values given in column G of Table 10-16. (2)(4) (NOTE: This GMP is based on guidelines found in 78/659/EEC, Article 3.)
FERTILIZER USE	
10-33. Member States are required to regulate the use of fertilizers to prevent water pollution by nitrates (91/676/EEC).	Determine whether the installation is aware of the regulations adopted by the Host Nation concerning the use of fertilizers. (4) Verify that the use of fertilizers on the installation conforms to the regulations. (4)
10-34. The use of fertilizers on the installation should follow the Code(s) of Good Agricultural Practice, which the Member States are required to issue.	Determine whether the installation is aware of the Code of Good Agricultural Practice issued by the Host Government. (4) Verify that the use of fertilizer on the installation conforms to the Code of Good Agricultural Practice. (4) (NOTE: This GMP is taken from 91/676/EEC.)

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Table 10-1

Characteristics of Surface Water of Quality A1 Intended for the Abstraction of Drinking Water

* indicates standards that may be waived because of exceptional meteorological or geographical conditions

Parameter	Maximum Allowable Concentration	Guide Level
1. pH		6.5 to 8.5
2. Coloration after simple filtration, mg/L Pt scale	20*	10
3. Total suspended solids, mg/L SS		25
4. Temperature, ^{o} C	25*	22
5. Conductivity, microhmos/cm		1000
6. Odor, dilution factor at 25 ^{o} C		3
7. Nitrates, mg/L NO_3	50*	25
8. Fluorides, mg/L F	1.5	0.7 to 1.0
9. Total extractable organic chlorine, mg/L Cl		
10. Dissolved iron, mg/L Fe	0.3	0.1
11. Manganese, mg/L Mn		0.05
12. Copper, mg/L Cu	0.05*	0.02
13. Zinc, mg/L Zn	3	0.5
14. Boron, mg/L B		1
15. Beryllium, mg/L Be		
16. Cobalt, mg/L Co		
17. Nickel, mg/L Ni		
18. Vanadium, mg/L V		
19. Arsenic, mg/L As	0.05	0.01
20. Cadmium, mg/L Cd	0.005	0.001
21. Total chromium, mg/L Cr	0.05	
22. Lead, mg/L Pb	0.05	
23. Selenium, mg/L Se	0.01	
24. Mercury, mg/L Hg	0.001	0.0005
25. Barium, mg/L Ba	0.1	
26. Cyanide, mg/L CN	0.05	
27. Sulfates, mg/L SO_4	250	150
28. Chlorides, mg/L Cl		200
29. Surfactants (reacting with ethyl blue), mg/L (laurylsulphate)		0.2
30. Phosphates, mg/L P_2O_5		0.4

Table 10-1 (continued)

Parameter	Maximum Allowable Concentration	Guide Level
31. Phenols (Phenol index) paranitraniline 4 aminoantipyrine, mg/L C_6H_5OH	.001	
32. Dissolved or emulsified hydrocarbons (after extraction by petroleum ether, mg/L	.05	
33. Polycyclic aromatic hydrocarbons, mg/L	.0002	
34. Total pesticides (parthion, BHC, dieldrin), mg/L	.001	
35. Chemical oxygen demand, mg/L O_2		
36. Dissolved oxygen saturation rate, % O_2		>70
37. Biochemical oxygen demand, BOD_5 at 20 ° C without nitrification, mg/L O_2		<3
38. Nitrogen by Kjeldahl method (except NO_3), mg/L N		1
39. Ammonia, mg/L NH_4		0.05
40. Substances extractable with chloroform, mg/L SEC		0.1
41. Total organic carbon, mg/L C		
42. Residual organic carbon after flocculation and membrane filtration (5 micron) TOC, mg/L C		
43. Total coliforms/100 mL at 37 ° C		50
44. Fecal coliforms/100 mL		20
45. Fecal streptococci/100 mL		20
46. Salmonella		Not present in 5000 mL

Table 10-2

Characteristics of Surface Water of Quality A2 Intended for the Abstraction of Drinking Water

* indicates standards that may be waived because of exceptional meteorological or geographical conditions

Parameter	Maximum Allowable Concentration	Guide Level
1. pH		5.5 to 9.0
2. Coloration after simple filtration, mg/L Pt scale	100*	50
3. Total suspended solids, mg/L SS		
4. Temperature, ^{o} C	25*	22
5. Conductivity, microhmos/cm		1000
6. Odor, dilution factor at 25 degrees C		10
7. Nitrates, mg/L NO_3	50*	
8. Fluorides, mg/L F		0.7 to 1.7
9. Total extractable organic chlorine, mg/L Cl		
10. Dissolved iron, mg/L Fe	0.3	1
11. Manganese, mg/L Mn		0.1
12. Copper, mg/L Cu		.05
13. Zinc, mg/L Zn	5	1
14. Boron, mg/L B		1
15. Beryllium, mg/L Be		
16. Cobalt, mg/L Co		
17. Nickel, mg/L Ni		
18. Vanadium, mg/L V		
19. Arsenic, mg/L As		0.05
20. Cadmium, mg/L Cd	0.005	0.001
21. Total chromium, mg/L Cr	0.05	
22. Lead, mg/L Pb	0.05	
23. Selenium, mg/L Se	0.01	
24. Mercury, mg/L Hg	0.001	.0005
25. Barium, mg/L Ba	1	
26. Cyanide, mg/L CN	0.05	
27. Sulfates, mg/L SO_4	250	150
28. Chlorides, mg/L Cl		200
29. Surfactants (reacting with ethyl blue), mg/L (laurylsulphate)		0.2
30. Phosphates, mg/L P_2O_5		0.7

Table 10-2 (continued)

Parameter	Maximum Allowable Concentration	Guide Level
31. Phenols (Phenol index) paranitraniline 4 aminoantipyrine, mg/L C_6H_5OH	0.005	.001
32. Dissolved or emulsified hydrocarbons (after extraction by petroleum ether, mg/L	.02	
33. Polycyclic aromatic hydrocarbons, mg/L	.002	
34. Total pesticides (parthion, BHC, dieldrin), mg/L	.0025	
35. Chemical oxygen demand, mg/L O_2		
36. Dissolved oxygen saturation rate, % O_2		>50
37. Biochemical oxygen demand, BOD_5 at 20 ^{o} C without nitrification, mg/L O_2		<5
38. Nitrogen by Kjeldahl method (except NO_3), mg/L N		2
39. Ammonia, mg/L NH_4	1.5	1
40. Substances extractable with chloroform, mg/L SEC		0.2
41. Total organic carbon, mg/L C		
42. Residual organic carbon after flocculation and membrane filtration (5 micron) TOC, mg/L C		
43. Total coliforms/100 mL at 37 ^{o} C		5000
44. Fecal coliforms/100 mL		2000
45. Fecal streptococci/100 mL		1000
46. Salmonella		Not present in 1000 mL

Table 10-3

Characteristics of Surface Water of Quality A3 Intended for the Abstraction of Drinking Water

* indicates standards that may be waived because of exceptional meteorological or geographical conditions

Parameter	Maximum Allowable Concentration	Guide Level
1. pH		5.5 to 9.0
2. Coloration after simple filtration, mg/L Pt scale	200*	50
3. Total suspended solids, mg/L SS		
4. Temperature, ^{o} C	25*	22
5. Conductivity, microhmos/cm		1000
6. Odor, dilution factor at 25 degrees C		20
7. Nitrates, mg/L NO_3	50*	25
8. Fluorides, mg/L F		0.7 to 1.0
9. Total extractable organic chlorine, mg/L Cl		
10. Dissolved iron, mg/L Fe		1
11. Manganese, mg/L Mn		1
12. Copper, mg/L Cu		1
13. Zinc, mg/L Zn	5	1
14. Boron, mg/L B		1
15. Beryllium, mg/L Be		
16. Cobalt, mg/L Co		
17. Nickel, mg/L Ni		
18. Vanadium, mg/L V		
19. Arsenic, mg/L As	0.1	0.05
20. Cadmium, mg/L Cd	0.005	0.001
21. Total chromium, mg/L Cr	0.05	0.05
22. Lead, mg/L Pb	0.05	0.05
23. Selenium, mg/L Se	0.01	0.01
24. Mercury, mg/L Hg	0.001	0.005
25. Barium, mg/L Ba	0.1	0.1
26. Cyanide, mg/L CN	0.05	0.05
27. Sulfates, mg/L SO_4	250	150
28. Chlorides, mg/L Cl		200
29. Surfactants (reacting with ethyl blue), mg/L (laurylsulphate)		0.7
30. Phosphates, mg/L P_2O_5		0.7

Table 10-3 (continued)

Parameter	Maximum Allowable Concentration	Guide Level
31. Phenols (Phenol index) paranitraniline 4 aminoantipyrine, mg/L C_6H_5OH	0.1	.01
32. Dissolved or emulsified hydrocarbons (after extraction by petroleum ether, mg/L	1	.5
33. Polycyclic aromatic hydrocarbons, mg/L	.001	.0002
34. Total pesticides (parthion, BHC, dieldrin), mg/L	.005	.001
35. Chemical oxygen demand, mg/L O_2		30
36. Dissolved oxygen saturation rate, % O_2		$\geq$30
37. Biochemical oxygen demand, BOD_5 at 20 ^{o} C without nitrification, mg/L O_2		$\leq$7
38. Nitrogen by Kjeldahl method (except NO_3), mg/L N		3
39. Ammonia, mg/L NH_4	4	2
40. Substances extractable with chloroform, mg/L SEC		0.5
41. Total organic carbon, mg/L C		
42. Residual organic carbon after flocculation and membrane filtration (5 micron) TOC, mg/L C		
43. Total coliforms/100 mL at 37 ^{o} C		50,000
44. Fecal coliforms/100 mL		20,000
45. Fecal streptococci/100 mL		10,000
46. Salmonella		Not present in 5000 mL

Table 10-4

Reference Method of Measuring the Values of the Parameters in Tables 10-1 through 10-3, with Limits of Detection, Precision, and Accuracy

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
1. pH, pH units			
-Electrometry, measured in situ at the time of sampling without prior treatment of the sample	--	0.1	0.2
2. Coloration after simple filtration, mg/L Pt scale			
-Filtering through a glass fiber membrane	5	10%	20%
-Photometric method using the Pt-Co scale			
3. Total suspended solids, mg/L			
-Filtering through a 0.45 micron filter membrane, drying at 105 °C and weighing	--	5%	10%
-Centrifuging for at least 5 min with mean acceleration of 2800 to 3200g, drying at 105 °C and weighing			

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
4. Temperature, ^{o} C			
-Thermometry, measured *in situ* at the time of sampling without prior treatment of the sample	--	0.5	1
5. Conductivity, micromhos/cm			
-Electrometry	--	5%	10%
6. Odor, dilution factor at 25^{o} C			
-By successive dilutions	--	--	--
7. Nitrates, mg/L NO_3			
-Molecular absorption spectrophotometry	2	10%	20%
8. Fluorides, mg/L F			
-Molecular absorption spectophotometry after distillation if necessary	0.05	10%	20%
-Ion selective electrodes			
9. Total extractable organic chlorine, mg/L Cl			
10. Dissolved iron, mg/L Fe			
-Atomic absorption spectrophotometry after filtering through a filter membrane (0.45 microns)	0.02	10%	20%

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
11. Manganese, mg/L Mn			
a. Water category A1			
-Atomic absorption spectrophotometry	0.01	10%	20%
b. Water category A2 or A3			
-Atomic absorption spectrophotometry	0.02	10%	20%
-Molecular absorption spectrophotometry			
12. Copper, mg/L Cu			
a. Water category A1 or A2			
-Atomic absorption spectrophotometry	0.005	10%	20%
-Polarography			
b. Water category A3			
-Atomic absorption spectrophotometry	0.02	10%	20%
-Molecular absorption spectrophotometry			
-Polarography			

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
13. Zinc, mg/L Zn			
a. Water category A1			
-Atomic absorption spectrophotometry	0.01	10%	20%
b. Water category A2 or A3			
-Atomic absorption spectrophotometry	0.02	10%	20%
-Molecular absorption spectrophotometry			
14. Boron, mg/L B			
-Molecular absorption spectrophotometry	0.1	10%	20%
-Atomic absorption spectrophotometry			
15. Beryllium, mg/L Be			
16. Cobalt, mg/L Co			
17. Nickel, mg/L Ni			
18. Vanadium, mg/L V			
19. Arsenic, mg/L As			
a. Water Category A1, G value			
-Atomic absorption spectrophotometry	0.002	20%	20%
b. Water Category A1, A2 or A3, I value			
-Atomic absorption spectrophotometry	0.01		
-Molecular absorption spectrophotometry			

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
20. Cadmium, mg/L Cd			
-Atomic absorption spectrophotometry	0.0002	30%	30%
-Polarography	0.001 (I value		
21. Total chromium, mg/L Cr			
-Atomic absorption spectrophotometry	0.01	20%	30%
-Molecular absorption spectrophotometry			
22. Lead, mg/L Pb			
-Atomic absorption spectrophotometry	0.01	20%	30%
-Polarography			
23. Selenium, mg/L Se			
-Atomic absorption spectrophotometry	0.0005		
24. Mercury, mg/L Hg			
-Flameless atomic absorption spectrophotometry (cold vaporization)	0.0001 0.0002 (I value	30%	30%
25. Barium, mg/L Ba			
-Atomic absorption spectrophotometry	0.02	15%	30%
26. Cyanide, mg/L Cn			
-Molecular absorption spectrophotometry	0.01	20%	30%

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
27. Sulfates, mg/L SO_4			
-Gravimetric analysis	10	10%	10%
-EDTA complexiметry			
-Molecular absorption spectrophotometry			
28. Chlorides, mg/L Cl			
-Titration (Mohr's method)	10	10%	10%
-Molecular absorption spectrophotometry			
29. Surfactants (reacting with ethyl blue), mg/L (laurylsulfate)			
-Molecular absorption spectrophotometry	0.05	20%	
30. Phosphates, mg/L P_2O_5			
-Molecular absorption spectrophotometry	0.02	10%	20%
31. Phenols (Phenol index), mg/L C_6H_5OH			
-Molecular absorption spectrophotometry, 4-aminoantipyrine method	.0005	.0005	.0005
-Paranitriline method	.001 (Water Categories A2, I value, and A3)	30%	50%

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
32. Dissolved or emulsified hydrocarbons (after extraction by petroleum ether), mg/L			
-Infrared spectrometry after extraction by carbon tetrachloride	0.01 0.04 (Water Categories A2 and A3	20%	30%
-Gravimetry after extraction by petroleum ether			
33. Polycyclic aromatic hydrocarbons, mg/L			
-Measurement of fluorescence in the UV after thin layer chromatography. Comparative measurement in relation to a mixture of six control substances with the same concentration	0.00004	50%	50%
34. Total pesticides (parthion, BHC, dieldrin), mg/L			
-Gas or liquid chromatography after extraction by suitable solvents and purification, identification of the constituents of the mixture, quantitative analysis	0.0001	50%	50%

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
35. Chemical oxygen demand, mg/L O_2			
-Potassium dichromate method	15	20%	20%
36. Dissolved oxygen saturation rate, % O_2			
-Winkler's method	5	10%	10%
-Electrochemical method			
37. Biochemical oxygen demand (BOD5) (at 20° C without nitrification), mg/L			
-Determination of dissolved oxygen before and after a five-day incubation period at 20° C plus or minus 1° C, in complete darkness. Addition of nitrification inhibitor	2	1.5	2
38. Nitrogen by Kjeldahl method (except in NO_3 and NO_2), mg/L N			
-Mineralization, distillation by Kjeldahl method and ammonium determination by means of molecular absorption spectrophotometry or titration	0.3	0.5	0.5

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
39. Ammonia, mg/L NH_4			
a. Water Category A1, guide level			
-Molecular absorption spectrophotometry	0.01	0.03	0.03
b. Water Categories A2 and A3			
-Molecular absorption spectrophotometry	0.1	10%	20%
40. Substances extractable with chloroform, mg/L			
-Extraction at neutral pH value by purified choloroform in vacuo at room temperature, weighing of residue			
41. Total organic carbon, mg/L C			
42. Residual organic carbon after flocculation and membrane filtration (5 microns) TOC, mg/L C			
43. Total coliforms/100mL at 37° C			
-Culture at 37° C on an appropriate specific solid medium, with filtation (Water Category A1) or without filtration (Water Category A2 or A3) and colony count. Dilute or concentrate the samples to obtain 10 to 100 colonies. If necessary, identify by gasification.	5 (Water Category A1, guide level 500 (Water Category A2 or A3, guide level)		

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
-Method of dilution with fermentation in liquid substrates in at least 3 tubes in 3 dilutions. Subculturing of positive tubes on a confirmation medium. Count according to MPN (most probable number). Incubation temperature 37° C plus or minus 1°	5 (Water Category A1, guide level) 500 (Water Category A2 or A3, guide level		
44. Fecal coliforms/100 mL			
-Culture at 44° C on an appropriate specific solid medium, with filtation (Water Category A1) or without filtration (Water Category A2 or A3) and colony count. Dilute or concentrate the samples to obtain 10 to 100 colonies. If necessary, identify by gasification.	2 (Water Category A1, guide level) 200 (Water Category A2 or A3, guide level)		
-Method of dilution with fermentation in liquid substrates in at least 3 tubes in 3 dilutions. Subculturing of positive tubes on a confirmation medium. Count according to MPN (most probable number). Incubation temperature 44° C plus or minus 1°	2 (Water Category A1, guide level) 200 (Water Category A2 or A3, guide level		

Table 10-4 (continued)

Parameter and Reference Methods of Measurement	Limit of Detection	Precision ±	Accuracy ±
45. Fecal streptococci /100 mL (Use sterilized glass container)			
-Culture at 37° C on an appropriate solid medium, with filtation (Water Category A1) or without filtration (Water Category A2 or A3) and colony count. Dilute or concentrate the samples to obtain 10 to 100 colonies.	2 (Water Category A1, guide level) 200 Water Category A2 or A3, guide level		
-Method of dilution in sodium azide broth in at least 3 tubes in in 3 dilutions. Count according to MPN (most probable number).			
46. Salmonella (Use sterilized glass container.)			
-Concentration by filtration on membrane or appropriate filter)	1/5000 or A3, Guide Value)		
-Inoculation into pre-enrichment medium. Enrichment or transfer into isolating gelese. Identification.	1/1000 mL		

Table 10-5

Minimum Annual Frequency of Sampling and Analysis for Each Parameter in Table 10-4.

Water Category A1

	Parameter Category		
Population served	I	II	III
10,000 or less	***	***	***
10,001 to 30,000	1	1	***
30,001 to 100,000	2	1	***
100,001 or more	3	2	***

Water Category A2

	Parameter Category		
Population served	I	II	III
10,000 or less	***	***	***
10,001 to 30,000	2	1	***
30,001 to 100,000	4	2	1
100,001 or more	8	4	1

Water Category A3

	Parameter Category		
Population served	I	II	III
10,000 or less	***	***	***
10,001 to 30,000	3	1	1
30,001 to 100,000	6	2	1
100,001 or more	12	4	1

*** Frequency to be determined by national authorities.

Table 10-5 (continued)

Categories of Surface Water Parameters for Determining Frequency of Testing

Category I

1. pH
2. Coloration after simple filtration
3. Total suspended solids
4. Temperature
5. Conductivity
6. Odor
7. Nitrates
28. Chlorides
30. Phosphates
10. Dissolved iron
35. Chemical oxygen demand
36. Dissolved oxygen saturation rate
37. Biochemical oxygen demand (BOD_5)

Category Ii

9. Total extractable organic chlorine
10. Dissolved iron
11. Manganese
12. Copper
13. Zinc
27. Sulfates
29. Surfactants (reacting with methyl blue)
31. Phenols (Phenol index) paranitraniline 4-aminoantipyrine

Category III

8. Fluorides
14. Boron
19. Arsenic
20. Cadmium
21. Total chromium
22. Lead
23. Selenium
24. Mercury
25. Barium
26. Cyanide
32. Dissolved or emulsified hydrocarbons (after extraction by petroleum ether)
33. Polycyclic aromatic hydrocarbons
34. Total pesticides (parthion, BHC, dieldrin
40. Substances extractable with chloroform
45. Fecal streptococci
46. Salmonella

Table 10-6

Standards for the Quality of Water Intended for Human Consumption (80/778/EEC)

	Guide Level	Maximum Admissible Concentration
A. ESTHETIC PARAMETERS		
1. Color, $\mu g/L$ Pt/Co scale	1	20
2. Turbidity		
a. $\mu g/L$ SiO_2	1	10
b. Jackson units	0-4	4
3. Odor, dilution number		
a. 12^o	0	2
b. 25^o	0	3
4. Taste, dilution number		
a. 12^o	0	2
b. 25^o	0	3
B. PHYSICAL AND CHEMICAL PARAMETERS		
5. Temperature, ^{o} C	12	25
6. Hydrogen ion concentration, pH unit	6.5-8.5	
7. Conductivity, micromhos/centimeter at 20^o C	400	
8. Chlorides, Cl $\mu g/L$	25	
9. Sulfates, SO_4 $\mu g/L$	25	250
10. Silica SiO_2 $\mu g/L$		
11. Calcium, Ca $\mu g/L$	100	
12. Magnesium, Mg $\mu g/L$	30	50
13. Sodium Na $\mu g/L$, percentile of 80	20	150
14. Potassium, K $\mu g/L$	10	12
15. Aluminum, Al $\mu g/L$	0.05	0.2
17. Dry residues, $\mu g/L$ after drying at 180^o		1500
18. Dissolved oxygen, % O_2 saturation		
19. Free carbon dioxide, CO_2 $\mu g/L$		
20. Nitrates, NO_3 $\mu g/L$	25	50
21. Nitrites, NO_2 $\mu g/L$	0.1	
22. Ammonium, NH_4 $\mu g/L$	0.05	0.5
23. Nitrogen by Kjeldahl method (excluding N in NO_2 and NO_3), N $\mu g/L$		1
24. $KMnO_4$ oxidizability, O_2 $\mu g/L$	2	5
25. Total organic carbon C $\mu g/L$		

Table 10-6 (continued)

	Guide Level	Maximum Admissible Concentration
26. Hydrogen sulfide, S $\mu g/L$		undetectable by smell
27. Substances extractable in chloroform, $\mu g/L$ dry residue	0.1	
28. Dissolved or emulsified hydrocarbons after extraction by petroleum ether; mineral oils, $\mu g/L$		10
29. Phenols, excluding natural phenols which do not react with chlorine, C_6H_5OH $\mu g/L$		0.5
30. Boron, B $\mu g/L$	1000	
31. Surfactants reacting with methylene blue, $\mu g/L$ (lauryl sulfate)		200
32. Organochlorine compounds not covered by parameter no. 55, $\mu g/L$	1	
33. Iron, Fe $\mu g/L$	50	500
34. Manganese, Mn $\mu g/L$	20	50
35. Copper, Cu $\mu g/L$		
a. At outlets of pumping and/or treatment works and their substations	100	
b. After the water has been standing for 12 hours in the piping and at the point where the water is made available to the consumer	3000	
36. Zinc, Zn $\mu g/L$		
a. At outlets of pumping and/or treatment works and their substations	100	
b. After the water has been standing for 12 hours in the piping and at the point where the water is made available to the consumer	5000	
37. Phosphorus, P_2O_5 $\mu g/L$	400	5000
38. Fluoride, F $\mu g/L$		
a. 8-12°C		1500
b. 25-30°C		700
39. Cobalt, Co $\mu g/L$		
40. Suspended solids	None	
41. Residual chlorine, Cl $\mu g/L$		
42. Barium, Ba $\mu g/L$	100	
43. Silver, Ag $\mu g/L$		10

Table 10-6 (continued)

	Guide Level	Maximum Admissible Concentration
PARAMETERS CONCERNING TOXIC SUBSTANCES		
44. Arsenic, As μg/L		50
45. Beryllium, Be μg/L		
46. Cadmium, Cd μg/L		5
47. Cyanides, CN μg/L		50
48. Chromium, Cr μg/L		50
49. Mercury, Hg μg/L		1
50. Nickel, Ni μg/L		50
51. Lead in running water, Pb μg/L		50
52. Antimony, Sb μg/L		10
53. Selenium, Se μg/L		10
54. Vanadium, V μg/L		
55. Pesticides and related products, μg/L		
a. Persisent organochlorine compounds		0.1
b. Organophosphorous compounds		0.1
c. Carbamates		0.1
d. Herbicides		0.1
e. Fungicides		0.1
f. PCBs and PCTs		0.1
g. Total pesticides		0.5
56. *Polycyclic aromatic* hydrocarbons, μg/L		0.2
MICROBIOLOGICAL PARAMETERS		
57. Total coliforms/100 mL		
a. Membrane filter method		0
b. Multiple tube method		MPN◁
58. Fecal coliforms		
a. Membrane filter method		0
b. Multiple tube method		MPN◁
59. Fecal streptococci		
a. Membrane filter method		0
b. Multiple tube method	MPN◁	
60. Sulfite reducing clostridia		
a. Membrane filter method		
b. Multiple tube method		MPN◁
61. Total bacteria counts/mL for water supplied for human consumption		
a. 37° C	10	
b. 22° C	100	
62. Total bacteria counts/mL for water in closed containers		
a. 37° C	5	20
b. 22° C	20	100

Table 10-7

Reference Methods of Analysis of Water Intended for Human Consumption (80/778/EEC, annex III)

A. ESTHETIC PARAMETERS

1. Color	Photometric method calibrated on the Pt/Co scale
2. Turbidity	Silica method, Formazine test, Secchi method
3. Odor	Successive dilutions, tested at 12° C or 25° C
4. Taste	Successive dilutions, tested at 12° C or 25° C

B. PHYSICAL AND CHEMICAL PARAMETERS

5. Temperature	Thermometry
6. Hydrogen ion concentration	Electrometry
7. Conductivity	Electrometry
8. Chlorides	Titrimetry, Mohr's method
9. Sulfates	Gravimetry, Complexometry, Spectrophotometry
10. Silica	Absorption spectrophotometry
11. Calcium	Atomic Absorption, Complexometry
12. Magnesium	Atomic Absorption
13. Sodium	Atomic absorption
14. Potassium	Atomic absorption
15. Aluminum	Atomic absorption, Absorption spectrophotometry
17. Dry residues	Desiccation at 180° C and weighing
18. Dissolved oxygen	Winkler's method, specific electrode method
19. Free carbon dioxide	Acidimetry
20. Nitrates	Absorption spectrophotometry, specific electrode method
21. Nitrites	Absorption spectrophotometry
22. Ammonium	Absorption spectrophotometry
23. Kjeldahl nitrogen	Oxidation with titrimetry, or absorption spectrophotometry
24. Oxidizability	Boiling for 10 minutes with $KMnO_4$ in acid medium
25. Total organic carbon	
26. Hydrogen sulfide	Absorption spectrophotometry

Table 10-7 (continued)

27. Substances extractable with chloroform	Liquid/liquid extraction using purified chloroform at neutral pH, weighing the residue
28. Hydrocarbons (dissolved or in emulsions); mineral oils	Infrared absorption spectrophotometry
29. Phenols	Absorption spectrophotometry, paranitroaniline method and 4-aminoantipyrine method
30. Boron	Atomic absorption, absorption spectrophotometry
31. Surfactants reacting with methylene blue	Absorption spectrometry with methylene blue
32. Other organochlorine compounds	Gas-phase or liquid-phase chromatography after extraction by appropriate solvents and purification, identification of the constitutents of mixtures with quantitative determination if necessary
33. Iron	Atomic absorption, Absorption spectrophotometry
34. Manganese	Atomic absorption, Absorption spectrophotometry
35. Copper	Atomic absorption, Absorption spectrophotometry
36. Zinc	Atomic absorption, Absorption spectrophotometry
37. Phosphorus, P_2O_5	
38. Fluoride, F micrograms/l	
39. Cobalt, Co micrograms/l	
40. Suspended solids	None
41. Residual chlorine,	
42. Barium, Ba micrograms/l	100
43. Silver, Ag micrograms/l	10
PARAMETERS CONCERNING TOXIC SUBSTANCES	
44. Arsenic, As micrograms/l	50
45. Beryllium, Be micrograms/l	
46. Cadmium, Cd micrograms/l	5
47. Cyanides, CN micrograms/l	50
48. Chromium, Cr micrograms/l	50
49. Mercury, Hg micrograms/l	1
50. Nickel, Ni micrograms/l	50
51. Lead in running water, Pb micrograms/l	50
52. Antimony, Sb micrograms/l	10
53. Selenium, Se micrograms/l	10
54. Vanadium, V micrograms/l	
55. Pesticides and related products, micrograms/liter	
56. Polycyclic aromatic hydrocarbons, micrograms/l	0.2

MICROBIOLOGICAL PARAMETERS

57. Total coliforms/100 mL
58. Fecal coliforms
59. Fecal streptococci
60. Sulfite reducing clostridia
61. Total bacteria counts/mL for water supplied for human consumption
62. Total bacteria counts/mL for water in closed containers

Table 10-8

Minimum Frequency of Standard Analysis

* indicates frequencies to be determined by national authority

Volume of Water Produced or Distributed, m^3/day	Population Concerned (Assuming 200 liters per person	Analysis C1 Number of Samples per Year	Analysis C2 Number of Samples per Year	Analysis C3 Number of Samples per Year	Number of Samples per Year
100	500	*	*	*	*
1000	5000	*	*	*	*
2000	10,000	12	3	*	*
10,000	50,000	60	6	1	*
20,000	100,000	120	12	2	*
30,000	150,000	180	18	3	*
60,000	300,000	360	36	6	*
100,000	500,000	360	60	10	*
200,000	1,000,000	360	120	20	*
1,000,000	5,000,000	360	120	20	*

(NOTE: Pattern C1 is required for
- odor
- taste
- conductivity
- residual chlorine or other disinfectants used in treatment
- total coliforms or total bacteria counts at 22° or 37°.

Pattern C2 is required for:
- odor
- taste
- turbidity in appearance
- temperature
- conductivity
- pH
- residual chlorines or other disinfectants used in treatment
- nitrates
- nitrites
- ammonia
- total coliforms or total bacteria counts at 22° or 37°

Pattern C3 is required for parameters listed under C2 as well as for other parameters that may be determined by the government of the host nation.

Pattern C4 is required for parameters that may be determined by the government of the host nation.)

Table 10-9

Minimum Required Concentrations for Softened Water Intended for Human Consumption

Parameters	Minimum Required Concentration	Comments
1. Total hardness, mg/l Ca	60	Calcium or equivalent cations
2. Hydrogen ion concentration, pH		The water should not be aggressive
3. Alkalinity, mg/l HCO_3	30	The water should not be aggressive
4. Dissolved oxygen		The water should not be aggressive

Table 10-10

Requirements for discharges from urban waste water treatment plants subject to Articles 4 and 5 of the Directive. The values for concentration or for the percentage of reduction shall apply.

Parameters	Concentration	Minimum percentage of reduction [1]	Reference method of measurement
Biochemical oxygen demand (BOD_5 at 20°C) without nitrification[2]	25 mg/L O_2	70-90 40 under Article 4 (2)	Homogenized, unfiltered, undecanted sample. Determination of dissolved oxygen before and after five-day incubation at 20°C±1°C, in complete darkness. Addition of a nitrification inhibitor.
Chemical oxygen demand (COD)	125 mg/L O_2	75	Homogenized, unfiltered, undecanted sample Potassium dichromate.
Total suspended solids	35 mg/L[3] 25 under Article 4 (2) (more than 10,000 p.e.) 60 under Article 4 (2) 2000-10,000 p.e.)	90[3] 90 under Article 4 (2) (more than 10,000 p.e.) 70 under Article 4 (2) (2000-10,000 p.e.)	– Filtering of a representative sample through a 0.45 μm filter membrane. Drying at 105°C and weighing. – Centrifuging of a representative sample (for at least five mins. with mean acceleration of 2800 to 3200 g), drying at 105°C and weighing.

Analysis concerning discharges from lagooning shall be carried out on filtered samples; however, the concentration of total suspended solids in unfiltered water samples shall not exceed 150 mg/L.

[1] Reduction in relation to the load of the influent.

[2] The parameter can be replaced by another parameter: total organic carbon (TOC) or total oxygen demand (TOD) if a relationship can be established between BOD_5 and the substitute parameter.

[3] This requirement is optional.

Table 10-11

Requirements for discharges from urban waste water treatment plants to sensitive areas which are subject to eutrophication as identified in Annex II A (a). One or both parameters may be applied depending on the local situation. The values for concentration or for the percentage of reduction shall apply.

Parameters	Concentration	Minimum percentage of reduction [1]	Reference method of measurement
Total phosphorus	2 mg/L P (10,000-100,000 p.e.) 1 mg/L P (more than 100,000 p.e.)	80	Molecular absorption spectrophotometry
Total nitrogen[2]	15 mg/L N (10,000-100,000 p.e.) 10 mg/L N (more than 100,000 p.e.)[3]	70-80	Molecular absorption spectrophotometry

[1] Reduction in relation to the load of the influent.

[2] Total nitrogen means: the sum of total Kjeldahl-nitrogen (organic N + NH_3), nitrate (NO_3)-nitrogen and nitrite (NO_2)-nitrogen.

[3] Alternatively, the daily average must not exceed 20 mg/L N. This requirement refers to a water temperature of 12° C or more during the operation of the biological reactor of the waste water treatment plant. As a substitute for the condition concerning the temperature, it is possible to apply a limited time of operation, which takes into account the regional climatic conditions. This alternative applies if it can be shown that paragraph 1 of Annex I (D) is fufilled.

Table 10-12

Series of samples taken in a year	Maximum permitted number of samples which fail to conform
4-7	1
8-16	2
17-28	3
29-40	4
41-53	5
54-67	6
68-81	7
82-95	8
96-110	9
111-125	10
126-140	11
141-155	12
156-171	13
172-187	14
188-203	15
204-219	16
220-235	17
236-251	18
152-268	19
269-284	20
285-300	21
301-317	22
318-334	23
335-350	24
351-365	25

Table 10-13

Reference Methods for Monitoring and Evaluating Results

1. Flow proportional or time-based 24-hour samples shalll be collected at the same well-defined point in the outlet and if necessary in the inlet of the treatment plant in order to monitor compliance with the requirements for discharged waste water.

2. The minimum annual number of samples shall be determined according to the size of the treatment plant and be collected at regular intervals during the year:

   - 2000 to 9999 p.e. - 12 samples during the first year. Four samples in subsequent years, if it can be shown that the water during the first year complies with the provisions of the Directive, if one sample of four fails, 12 samples must be taken in the year that follows.
   - 10,000 to 49,999 p.e. - 12 samples.
   - 50,000 p.e. or over - 24 samples.

3. Treated waste water shall be assumed to conform to the relevant parameters, if for each relevant parameter considered individually, samples of water show that it complies with the relevant parametric value in the following way:

   - for the parameters specified in Table 10-10, a maximum number of samples which are allowed to fail the requirements, expressed in concentrations and/or percentage reductions in Table 10-10, is specified in Table 10-12
   - for the parameters of Table 10-10 expressed in concentrations, the failing samples taken under normal operating conditions must not deviate from the parametric values by more than 100 percent. For the parametric values in concentration relating to total suspended solids deviations of up to 150% may be accepted
   - for those parameters specified in Table 10-11 the annual mean of the samples for each parameter shall conform to the relevant parametric values.

Table 10-14

Water Quality Requirements for Bathing Water

Parameter	Maximum Allowable Concentration	Guide Level	Sampling Frequency
MICROBIOLOGICAL			
1. Total coliforms/100 mL	10,000	500	2 wks
2. Fecal coliforms/100 mL	2000	100	2 wks
3. Fecal streptococci/100mL		100	
4. Salmonella/L	0		
5. Enteroviruses PFU/10 Ls	0		
PHYSICAL/CHEMICAL			
6. pH	6-9		
7. Color	No abnormal change in color		2wks
8. Mineral Oils mg/L	No visible film on the surface of the water and no odor		
a. Special circumstances		≤0.3	2 wks
9. Surface-active substances reacting with methylene blue, mg/L (laurylsulfate)	No lasting foam	2 wks	
a. Special circumstances		≤0.3	
10. Phenols (phenol indices), mg/L C_6H_5OH	No specific odor	2 wks	
a. Special circumstances	≤05	≤005	
11. Transparency, m	1	2	2wks
12. Dissolved oxygen, % saturation O_2		80-120	
13. Tarry residues and floating materials such as wood, plastic articles, bottles, containers of glass, plastic, rubber, or any other substance, waste or splinters.		Absence	2 wks
14. Ammonia, mg/L NH_4			
15. Nitrogen by Kjeldahl method, mg/L N			
OTHER SUBSTANCES REGARDED AS INDICATIONS OF POLLUTION			
16. Pesticides (Parathion, HCH, Dieldrin), mg/L			
17. Heavy metals, mg/L of Arsenic (As), cadmium (Cd), chromium VI (Cr VI), lead (Pb), and mercury (Hg)			
18. Cyanide			
19. Nitrates, mg/L NO_3			
20. Phosphates, mg/L PO_4			

Table 10-15

Standards for Shellfish Waters

Parameter	Goal standards	Minimum Standards	Method of	Frequency of Measurement
1. pH, pH unit		7-9	Electrometry, measured in situ at the time of sampling	Quarterly
2. Temperature, $^{\circ}$ C	A discharge affecting shellfish waters must not cause the temperature of the waters to exceed by more than 2° C the temperature of the waters not so affected		Thermometry, measured in situ at the time of sampling	Quarterly
3. Coloration after filtration, mg Pt/L		A discharge affecting shellfish waters must not cause the color of the waters after filtration to deviate by more than 10 mg Pt/L from the color of the waters not so affected	a. Filter through a 0.45 micron membrane b. photometric method, using the platinum/ cobalt scale	Quarterly
4. Suspended solids, mg/L		A discharge affecting shellfish waters must not cause the suspended solid content of the waters to exceed by more than 30% the content of waters not so affected	a. Filtration through a 0.45 micron membrane, drying at 105° and weighing b. Centrifuging for at least 5 min., with mean acceleration of 2800 to 3200 G drying at 105° and weighing	Quarterly

Table 10-15 (continued)

Parameter	Goal standards	Minimum Standards	Method of	Frequency of Measurement
5. Salinity, %		a. ≤40% b. Discharge affecting shellfish waters must not cause their salinity to exceed by more than 30% the content of waters not so affected	Conducimetry	Monthly
6. Dissolved oxygen saturation, %	≥80%	a. ≥70% average value	a. Winkler's method or electrochemical method	Monthly a minimum of one sample representative of the daily sampling. When major daily variations are suspected, a minimum of 2 samples in 1 day shall be taken
7. Petroleum hydrocarbons		Hydrocarbons must not be present in the shellfish water in such quantities as to: a. produce a visible film on the surface of the water, or b) have harmful effects on the shellfish	Visual examination	Quarterly
8. Organohalogenated substances	The concentration of each substance in the shellfish water or in shellfish flesh must not reach or exceed a level which has harmful effects on the shellfish and larvae	Gas chromatography after extraction with suitable solvents and	Semiannually purification	

Table 10-15 (continued)

Parameter	Goal standards	Minimum Standards	Method of	Frequency of Measurement
9. Metals: Silver, arsenic, cadmium, chromium, copper, Mercury, nickel, lead, and zinc	The concentration of each substance in the shellfish water or in shellfish flesh must not reach a level which gives rise to harmful effects on the shellfish and larvae	Spectrometry of atomic absorption preceded, where appropriate, by concentration and/or extraction	Semiannually	
10. Fecal coliforms/100 mL	≤300 in the shellfish flesh and intervalvular liquid	Method of dilution liquid substrates in at least 3 tubes in 3 dilutions. Subculturing of the positive tubes on a confirmation medium. Count according to MPN (most probable number). Incubation temperature 44° plus or minus 0.5°.	Quarterly with fermentation in	
11. Substances affecting the taste of the shellfish		Concentration lower than that liable to to impair the taste of the shellfish	Examination of the shellfish by tasting where the presence of one of these substances is presumed	
12. Saxitoxin (produced by dinoflagellates)				

Table 10-16

Standards for Waters Supporting Fish Life (78/659/EEC, annex I)

Parameter	Salmonid Waters		Cyprinid Waters	
	G	I	G	I
1. Temperature, °C				
a. Temperature measured downstream of a point of thermal discharge (at the edge of the mixing zone) must not exceed the unaffected temperature by more than:	1.5°C		3°C	
b. Thermal discharges must not cause the temperature downstream of the point of the thermal discharge (at the edge of the mixing zone) to exceed the following:	21.5°C		28°C	
c. The following temperature limit applies only to breeding periods of species which need cold water for reproduction and only to waters which may contain such species: NOTE: Temperature limits may be exceeded for 2% of the time.	10°C		10°C	
2. Dissolved Oxygen (mg/L O_2)	50%≥9 100%≥7	50%≥9	50%≥8 100%≥5	50%≥7
NOTE: When the oxygen concentration falls below 6mg/L for salmonid waters or 4 mg/L for cyprinid waters, national governments are required to take corrective action.				

Table 10-16 (continued)

Parameter	Salmonid Waters		Cyprinid Waters	
	G	I	G	I
3. pH NOTE: Artificial pH variations with respect to the unaffected values shall not exceed +-0.5 of a pH unit within the limits falling between 6.0 and 9.0 provided that these variations do not increase the harmfulness of other substances present in the water.	6 to 9		6 to 9	
4. Suspended solids (mg/L) NOTE: The values shown are average concentrations and do not apply to suspended solids with harmful chemical properties. Floods are liable to cause particularly high concentrations.	<25		<25	
5. BOD_5 (mg/L O_2)	<3		<6	
6. Total phosphorus (mg/L P) NOTE: In the case of lakes of average depth between 18 and 300 m, refer to the equation in 78/659/EEC, annex I. In other cases, limit values of 0.2 mg/L for salmonid waters and 0.4 mg/L for cyprinid waters, expressed as PO_4, may be regarded as indicative in order to reduce eutrophication.				
7. Nitrites (mg/L NO_2)	<0.01		<0.03	
8. Phenolic compounds (mg/L C_6H_5OH) I value: Must not be present in such concentrations that they adversely affect fish flavor.				

Table 10-16 (continued)

Parameter	Salmonid Waters		Cyprinid Waters	
	G	I	G	I
9. Petroleum hydrocarbons I value: Must not be present in such quantities that they form a visible film on the surface of the water, or form coatings on the beds of watercourses or lakes, or impart a detectable "hydrocarbon" taste to fish, or produce harmful effects in fish.				
10. Non-ionized ammonia (mg/L NH_3) NOTE: Values for non-ionized ammonia may be exceeded in the form of minor peaks in the daytime.	<0.005	<0.025	<0.005	<0.025
11. Total ammonium (mg/L NH_4) NOTE: In special circumstances, host nations may set an I value greater than 1.	<0.04	<1	<0.2	<1
12. Total residual chlorine (mg/L HOCl) NOTE: The I values correspond to pH=6. Higher concentrations of total chlorine can be accepted if the pH is higher.	<0.005		<0.005	
13. Total zinc (mg/L Zn) NOTE: The I values vary with the water hardness in mg/L $CaCO_3$.				
a. 10 mg/L $CaCO_3$	0.03		0.3	
b. 50 mg/L $CaCO_3$	0.2		0.7	
c. 100 mg/L $CaCO_3$	0.3		1.0	
d. 500 mg/L $CaCO_3$	0.5		1.0	

Table 10-16 (continued)

Parameter	Salmonid Waters		Cyprinid Waters	
	G	I	G	I
14. Dissolved copper (mg/L Cu)				
NOTE: The G values vary with the water hardness in mg/L $CaCO_3$.				
a. 10 mg/L $CaCO_3$	0.005		0.005	
b. 50 mg/L $CaCO_3$	0.022		0.022	
c. 100 mg/L $CaCO_3$	0.04		0.04	
d. 500 mg/L $CaCO_3$	0.112		0.112	

INSTALLATION:	COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT EEC	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) BCE (Environmental Planning) (2) BEE (Bioenvironmental Engineering) (3) Wastewater Treatment Plant Superintendent (4) BCE (Natural Resources P' nner)